

# The Home







# The HOME

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SUPPLEMENT

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—Photos by M.E. Hewitt—

TYPES OF DAVENPORTS

1—Overstuffed Chaise Longue 2—Bed Davenport 3—Settee 4—Wicker Chair 5—Overstuffed Davenport 6—Tapestry Davenport 7—Upholstered Chaise Longue





A Simple and Restful Living Room





1. Lamp of Pottery, Parchment Shade. 2. Bedroom China Lamp, Dotted Swiss Shade. 3. Mahogany Floor Lamp, Silk Shade and Gold Tassels. 4. Chinese Pottery Lamp, Parchment Shade. 5. Carved Wood Table Lamp. 6. Chair or Bridge Lamp. 7. Vase Transformed Into Lamp, Silk Shade. 8. Brass Candlestick Made Into Desk Lamp. 9. Bedside Table Lamp of Mahogany. 10. Japanese Bowl Lamp with Teakwood Standard. 11. Chinese Lamp of Carved Wood, Parchment Shade.



# The Home

By EDGAR A. GUEST

It takes a heap o' livin' in a house t' make it  
home,  
A heap o' sun an' shadder, an' ye sometimes  
have t' roam  
Afore ye really 'preciate the things ye lef' be-  
hind,  
An' hunger fer 'em somehow, with 'em allus on  
yer mind.

It don't make any differunce how rich ye get  
t' be,  
How much yer chairs an' tables cost, how great  
yer luxury;  
It ain't home t' ye, though it be the palace of  
a king,  
Until somehow yer soul is sort o' wrapped  
round everything.

From "A Heap o' Livin'," copyrighted 1916, reproduced here by special permission of The Reilly & Lee Co.

## The Art of Homemaking

By BERTHA E. L. STOCKBRIDGE

"Travel east or travel west, a man's  
own home is still the best."

—Montgomery.

HOME means more than four walls,  
infinitely more. Anyone can build  
or buy four walls and fill them  
with inanimate things, but it requires  
Love to make a Home. There are few  
words in any language more beautiful  
or more full of meaning than the word  
*home*. Byron said: "without hearts  
there is no home," and that is defin-  
itely true.

It matters not whether the abode  
is "two rooms and bath" or whether  
it is a stately mansion surrounded  
by landscaped acres, if the hearts  
therein are right, it is a Home in  
the beautiful and enduring sense.

Home is the place where those  
who dwell therein find contentment  
and enjoyment, rest and inspiration  
to do the greater things of life.  
Home is the place above all others,  
where love, sincerity, honesty and  
good cheer should reign supreme.  
Home is the place where one's  
friends may share those joys, and  
sorrows too, if they come, and, with  
the intimate members of the family,  
possess the happiness that is sure to  
abide there. These truths need  
emphasis nowadays. Many influ-  
ences are at work to destroy homes  
or alienate our affections from  
them. Whatever the counter at-  
tractions may be, they in time  
lose their appeal, and those who  
have followed them come to see  
there is no contentment in them.

### The Spirit of Hospitality

ONE vital reason for having a  
home is to be able to share it  
with one's friends, to be able to ex-  
tend a generous hospitality and  
good cheer to those with whom  
we come in contact who are not  
of our immediate family.

Let us shed that spirit of hospi-  
tality around about our homes so  
that the very houses and the door-  
ways of our houses seem to radiate  
the spirit of good will. It may  
seem a bit unreal to say that a  
house or a doorway may be hos-  
pitable or cheerful or friend'y, but  
they are, or are not, as the case  
may be. Upon thinking of it, is it  
not true that you have called upon  
friends and found the outside of  
the house most forbidding, almost re-  
pelling? Oft times the house itself is  
not so bad, but the doorway has a  
"stand-offish" look that gives the be-  
holder a sense of aloofness that is not  
akin to the good will and friendliness  
expressed by the inmates of the house.

So let us, if we are responsible for  
the building of our homes or the re-  
building, it may be, build thoughtfully  
and kindly.

It does not cost any more money to  
build a house which will be good to  
look at than it does to build an ugly

The home we build or buy should re-  
flect ourselves to a great extent, should  
carry a bit of our personality, carry it  
even to the outside of the house. I  
would, however, advise against build-  
ing the unusual, the bizarre, the only-  
one-of-its-kind house, but would build

of some other doorway, nor need it be  
so far removed in style from other  
doorways that it will develop into an  
oddity. Let us build simply, honestly,  
and durably, selecting a style of archi-  
tecture for our house and doorway at  
once hospitable and lovely, of good  
lines which will be a constant joy to  
the observer and owner alike.

When we are about to build we  
should deliberate well upon the sur-  
roundings. Each house should seem to  
*belong* just where it is placed, should  
be a part of the surrounding coun-  
try and its immediate environment.  
In other words, it should be made  
to *fit* into its immediate neighbor-  
hood. The house which does not  
fit is too often seen, and should be  
a horrible example for those of us  
who have observed and marvelled  
at the carelessness of the builder.  
Often the place which gives the be-  
holder the impression of being all  
wrong, is merely wrong in its plac-  
ing. The same house which seemed  
to us so unattractive, were it placed  
in suitable surroundings would be  
considered a thing of beauty. This  
does not mean that all the houses  
in a locality must be alike, or that  
one is constructed to a particular  
type of architecture for a given  
sort of setting. It means rather  
that incongruities shall be avoid-  
ed, leaving a wide latitude for se-  
lection among suitable types.

### Tyingup House and Grounds

A CALIFORNIA bungalow, so  
called, would be the last type of  
house to construct on a New Eng-  
land village street, and a cottage of  
the "salt-box" type settled out on  
the mid-western prairie would in-  
deed look as though it were pining  
for its New England home-site. A  
little English Colonial house snug-  
gled under tall elms in a village  
street would surely *belong*.

A house and its grounds should  
be one in every sense of the word,  
should be a unit, just as the inside  
of the house should be a contin-  
uation of the beautiful picture began  
as we approach the house and gar-  
dens, if the house is so fortunate as  
to be situated in a garden.

The very last thing we wish to  
do is to present to the outsider a  
happy feeling of good-fellowship,  
and then dash his hopes to earth as he  
enters our abode by the forbidding  
aspect of the hall end rooms beyond.

If we were building, would we want  
our hall to be large or small? Even  
though we may have the space to give  
to a large hall, would we care to give



A Charming Hall Must Naturally Follow So Inviting a Doorway

one, nor does the beautiful and inviting  
doorway cost a jot more in real ex-  
penditure of cash than the unattrac-  
tive one. The only expenditure is  
one of thought and care, for which  
the lasting beauty of the house or  
doorway will more than repay.

a house along accepted lines, which  
may be as individual as one wishes  
without destroying the good points or  
the style of the house.

That which is true of houses is  
equally as true of the doorway of the  
house; it need not be an exact replica



over so much of the floor space to it? Shall we use this space for a living hall, or shall we be happier in having that particular space in the living room or library and having simply an entrance hall? These are questions for each individual house-builder and home-maker to decide for herself.

There is always the servant side of the question to be considered these days, for the servant question is by no means settled, and we often find it advisable to build our houses keeping this in mind, having only as much room as we can easily take care of with little or no outside help.

If we decide that we shall have an entrance hall instead of having the outside door open directly into the living room, whether we make it large or small, it must be a welcoming sort of a room—a "come-no-further" type of place.

Have it be hospitable and sociable do not crowd it with great quantities of furniture, some of the most delightful halls I have ever entered held only a table, a sofa, and a couple of chairs.

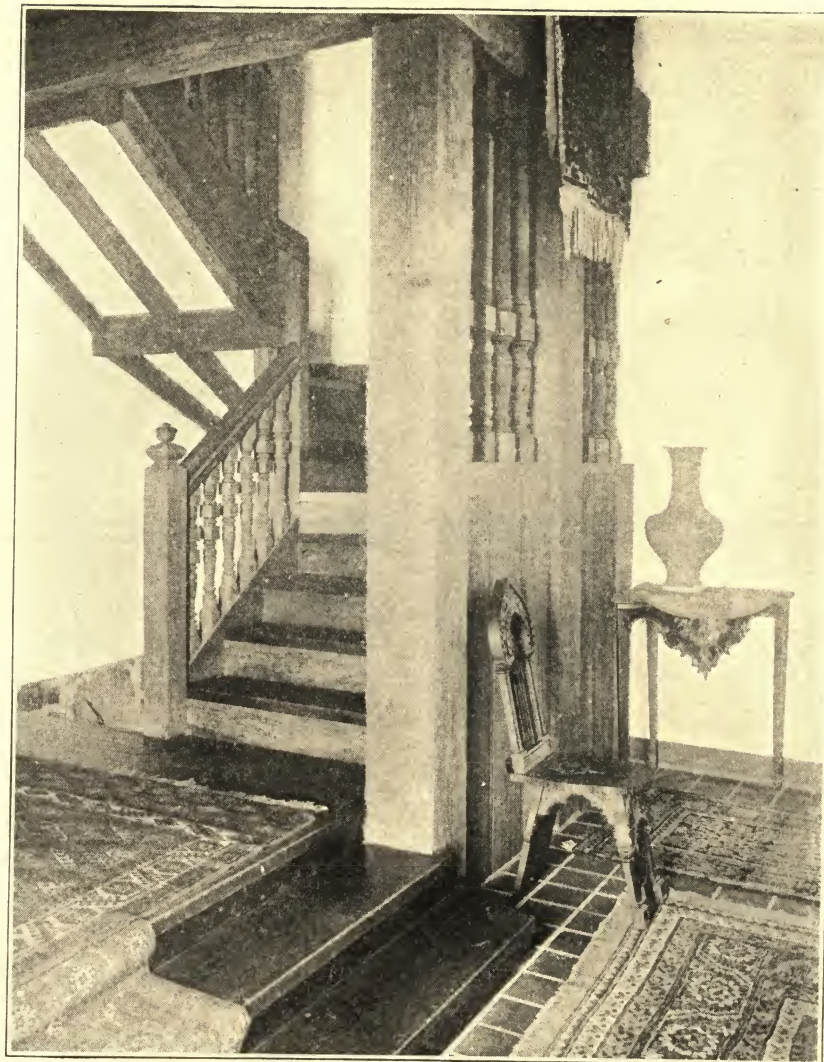


Such a Chair Will Find an Acceptable Place in the Living Room, No Matter What the Style of the Furnishing

The style of chairs, the coloring of the rugs and hangings, the mirror or pictures, or the lack of them, make the hall either a thing of beauty and joy or a most forbidding place. Neither are extravagant furnishings a necessary adjunct to beauty. Inexpensive furnishings of good lines and enticing colors, well arranged, make halls likable, livable and charming.

The entire house, especially the inside, should be an agreeable, gratifying whole, —a unit; the living room being a continuation of the hall and so on throughout the whole house, one room fitting into the next, each room only one part of the harmonizing whole. This is possible even though each room may be very different from the one adjoining; the decoration of the walls, the furniture, the rugs and hangings may be so allied that the *ensemble* is one of harmony and consistency, giving a grateful sense of restfulness which is the exponent of a real home.

There was a time when we had the bad taste to crowd our rooms, not only



An Interesting Hall, Unusual in Its Decoration

with furniture, but with nick nacks, pictures, scarves and even ribbon bows. That time, fortunately and sensibly, has gone, and we have learned the sanity as well as the beauty of space—uncluttered space. A room to have charm would better be too bare than too full. Morris did us an inestimable service when he preached the beauty of bare rooms. Through him we learned what a number of things we

means, that is gained. The mental rest afforded by an uncluttered room is beyond computation.

The joy of beautiful colors well combined is a balm to the weary housekeeper, which while she may not recognize it, still she reacts from it without knowing cause. Have you not fairly gloated over a bowl of spring flowers which cast a shadowy picture on the highly polished surface of the



Comfort and Beauty Go Hand and Hand in This Delightful Living Room

could eliminate and still be happy. In this process of elimination we save ourselves untold work in cleaning, dusting and sweeping, if nothing else were

That is not all, by any

dining table and blended with the coloring of the room as a delightful whole? Did not that little touch of exquisite color come as a restful solace?

There is no valid reason why each

room in the house may not have the same satisfactory and refreshing realization of beauty as that particular bowl of lovely flowers.

If the living room is to be furnished newly or newly in part, reflect well upon the color scheme to be used. Decide upon one which will wear well and of which you will not tire. In fact it is well to be quite certain that the fundamental color chosen is one you will not weary of, even though the combining colors may be changed occasionally. For instance; if brown is the dominant color which is selected and yellow the combining or comple-



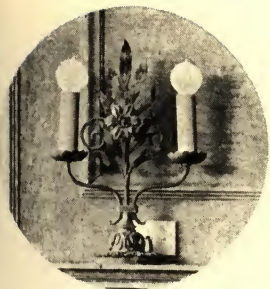
This Over-stuffed Chair Proclaims Its Comfortableness to the Beholder

mentary color, the yellow may give place to blue at some distant time and the whole room take on a new aspect. I do not mean that plain straight yellow should be the added color, but if a cretonne or chintz is selected with yellow figures or flowers predominating, and when the material is faded, as they have a way of doing, or when one is tired of that particular combination, a new cretonne may be substituted. This new cretonne may have as the predominating color, blue on a cream ground, and as a result the room will appear new in every sense. The color decided upon may be a deep mulberry, or a mulberry of the lighter tones, then sand, tan or gold are charming complementary colors, blended, if wanted, with tones of higher tints.

It is not incumbent upon the decorator to spend a great deal of money to obtain artistic and delightful results. It is not at all essential, as some are apt to think, to use elaborate and excessively expensive materials in the decoration of one's home. Velours, brocades and silk hangings are lovely but far from necessary to arrive at artistic effects. At one time, when hangings in a particular color for a bedroom were not obtainable, I purchased unbleached muslin of the cheapest grade and dyed it the color desired with the most satisfactory results. Since that time I have used unbleached muslin dyed to fit into some particular color scheme because I arrive at the same artistic results with the expenditure of very little money and not much work. If one's heart is set upon cretonne hangings, however, one may readily find, if a little time and some patience are, a part of one's equipment, patterns so serviceable and lovely, at unbelievable prices, that the satisfaction more than repays for the trouble.

If the decorator has decided upon the color wanted only, and not upon





the material to be used, her task is less difficult, for a trip through the shops will delight her soul, for any color may be found and almost any combination of colors if she will have patience. She may find a plain material in just the color and shade wanted, and also a cretonne which would combine charmingly with it. These used together would be lovely and satisfactory.

If some of the chairs need new covering and the windows cry out for new hangings, do not be disheartened if your pocketbook seems inadequate to meet the needs. If one will bear in mind that the essentials of beauty are, first, form, then color, and last, material, there will be less disappointment and fewer heartaches.

In "doing over" the living room one may find that the covering on one or more of the chairs, or a chair and a davenport, is too worn to do service another season. While one may not think it possible to have them recovered in the velour or tapestry one has been considering or longing for, would it not be wise to select a firm cretonne of charming color brightly figured with birds of glowing plumage or with baskets of many-hued but harmonizing flowers for the covers?

#### Cretonnes Give Homey Look

NOTHING is more inviting than an overstuffed chair with covers of bright cretonne or chintz. These covers, called "slip-covers," may be made at home if the housekeeper has time and does not feel that she can afford to have them made at the shop. A paper pattern is easily made by fitting it onto the chair to be covered. The backs of such covers are left open and fastened with snap fasteners when put on the chair. Two such chairs or a chair and a davenport may be so covered and the whole room will take on an air of being newly dressed. It is always good to use some of the same cretonne or chintz for overhangings at the windows or doors, or both, for it seems to bind the room together. There is a homey livableness in rooms in which good cretonnes are used discriminately.

It may not be simply coverings for the chairs which we need in our living room; it may be that we need the chairs or we may need to furnish the entire room, and if so, let us proceed slowly. There is much good sense in making haste slowly, and especially is that true of furniture buying. There is always the temptation to have every single thing we want at once. We are prone to try to make whatever money we have put aside for furnishing cover the whole list of our wants, but it is far better to purchase those pieces which our daily needs make imperative and wait patiently, or at least as patiently as possible, for the other pieces. In buying the few pieces, the better ones may be selected and will not be discarded later, but will grow more dear to us as time goes on. If we find that we cannot buy two good chairs at first, why not buy one good chair, and have that one covered with denim, in-

stead of tapestry or velours, and for the second chair, select one of willow or reed? The willow or reed chair will fit admirably into a bedroom or enclosed porch at some later date when the second good chair is within reach, and the denim-covered chair be recovered in the matching material of the rest of the furnishings. A willow or reed chair is always a comfortable one, and with home-made cushions made to match or blend with the color scheme of the room, it is by no means a piece of furniture to be scorned.

If one is handy with a paint brush, and most housekeepers of today are, the chair in question may be painted black, if black will harmonize with the rest of the room, or it may be painted that charming blue known as "Italian," if that fits, or it may be yellow, orange, red, or it may be green, a soft dull green, if that will fit; any of these will do so long as it harmonizes with the room. Remember that, whatever color is used, it must add to, not take away from, the harmoniousness of the

Carefully chosen chairs and sofas upholstered in matching or happily contrasting materials will make a most livable living room. In fact, I much prefer the one-piece-at-a-time choice of furniture which one may have if one is willing to give the time and labor to acquire just the right piece to fit in the particular place, or requirement. One or more of the chairs should be entirely covered, as the "over-stuffed" chair we illustrate, one may be of cane, either cushioned or not, suiting one's taste. The seat may be cushioned and the back be left of uncovered cane, if the housekeeper thinks best. One other type of occasional chair which we recommend most highly is that style known as the Windsor. These chairs, which were first made in this country in the seventeenth century, and used in any part of the house where a comfortable chair was needed, whether in the living part of the house, or the dining room or the kitchen, are obtainable today. In this day we are offered Windsor chairs re-



find the same grace and the same comfort which endeared them to our home-loving, home-making grandmothers.

The important thing to consider when buying chairs is not "is it new, is it in style?" but "is it well made?" and above all, "is it comfortable and usable?" not forgetting that beauty of line is a part of the desirableness. There is no good reason why a chair which is comfortable should not be beautiful. Commodious, restful chairs are made in good lines, and, if upholstered, are covered with lovely materials of wonderful colors, so that it remains only for the buyer to say whether her chairs shall have all the necessary requirements which go to make up a good chair or not.

Every usable, livable living room has at least one table, and upon the placing of the table depends in part the sort of table it shall be; whether it shall be ornamental or useful, whether it shall be used to hold books, a reading lamp and sewing basket or whether it shall be used for non-essentials, the things which delight the eye only.

#### The Davenport Table

WE have come to speak of a "davenport table" and its name tells us exactly where it is supposed to be placed. This long table of good width is placed at the back of the davenport or couch and holds beside reading matter, a reading lamp or two, a tobacco jar or cigarette box, if the man of the house is a smoker, the work basket, if the housekeeper is prone to sit with the family in the evening and do the weekly mending, and oft times it serves as a study table for the younger set who are still in school.

If the davenport and table are so placed that a comfortable chair, or two of them, mayhap, may be placed on the opposite side of the table much space is gained and great comfort added for each member of the family. And in furnishing and arranging the living room, remember that each member of the family



A Table Such as This Would Be Equally at Home at the Back of a Davenport

whole.

In a room I once occupied the cretonnes were tan, a soft light tan with lavender flowers and green leaves, and the chairs, which were willow, were painted a soft green, exactly the shade of the leaves, and the cushions were either of the cretonne or of lavender sateen piped with green. It was a charming, restful room.

In buying furniture for the home, it is not at all necessary to purchase what is known as a "parlor set," for a living room furnished with carefully chosen chairs, couches and tables which have no connection with any other or with each other excepting that they will make a livable whole in point of comfort and beauty, but are not in any sense a part of a "set," will be found by far more satisfactory. Buy a piece of furniture because it is first of use to you or your family, second because it is well made and beautiful. Such furniture has an excuse for existing for you, and that is the only reason why one should purchase furniture.

produced from the ones our great-grandfathers used, and finished in many woods or painted in wanted colors. In the ordinary house of that day of long ago there was no dining room, that is, no room set apart for eating, as we are apt to have today. One large room, which was used for the preparation and consumption of food was called "the kitchen." That the kitchen was also a gathering place for the family is readily proven by the many houses still standing in excellent state of preservation.

In the Windsor chairs which are manufactured today we



The Greatly to Be Desired Tip-Table, with Its Pie-crust Edge and Ball and Claw Feet





A Fire Screen Which Is Hand-Painted

should be considered.

While we are on the subject of tables, let us not forget the "occasional" table, that table which fits into so many places and which finds so many uses for itself. It seems to me that just having these alluring tables around suggests uses for them.

An excellent type of occasional table which is used more often as a tea table than for any other use, is the tip table, or as it is sometimes termed "the tripod table."

This good-looking piece of furniture, when not in use, may be kept tipped against the wall, as we show it in our illustration, or it may be used with the top flat, just as we will. If the tip table is used only for tea, it may be tipped up with the greatest ease and moved to a corner out of the way, but we may be assured that it is of decorative value to any room in which it is placed. The one we are showing is a reproduction of the Chippendale period having the much desired "pie-crust" edge and the "ball and claw" feet.

#### All Sorts of Tables

THESE tables, in the larger sizes, will hold all the necessary tea things, while the smaller ones, and their sizes are many, range from about nine inches across the top to twenty-four inches. Think of the innumerable uses to which they may be put; holding a tea cup, one or more magazines, a glass of water, a for-the-minute laid aside book, the knitting or the knitting bag, a plate of cookies—any number of things which are a part of everyday life.

Another almost indispensable table is the "end table." It may be placed at the arm of the reading chair which father claims as his own, holding his reading lamp and his books and the

evening paper. It may find a satisfactory resting place at the end of the davenport and there hold a few magazines and a flower bowl or anything the efficient and artistic hostess may be desirous of placing there.

That set of tables known as a "nest will prove itself a joy beyond words to the housekeeper who entertains often, for they may be used for so many things and at so many times that I was about to say that "no home was complete without them." These little tables, which are usually four in number, are made to fit snugly together, and when placed against the wall require very little room; but when wanted for use they are light and readily moved at will to any part of the house or to the porch, if needed there.

Among those things which some may think of as non-essential is the foot stool. If mother is not very tall, a foot stool will be a most blessed relief after a busy day. And why should we not be just as easy-taking as it is possible to be? Life will be sweeter and longer if we will only learn to take things a bit easy. Let us rest comfortably when we rest, not as if we were about to jump to do some forgotten or waiting task. So let us find a foot stool of just the right height for the housekeeper and home-maker, and let it be a pretty one too.

There are other so-considered non-essentials too, but if the possession of some of them make for a happier home, let's have as many as we can afford.

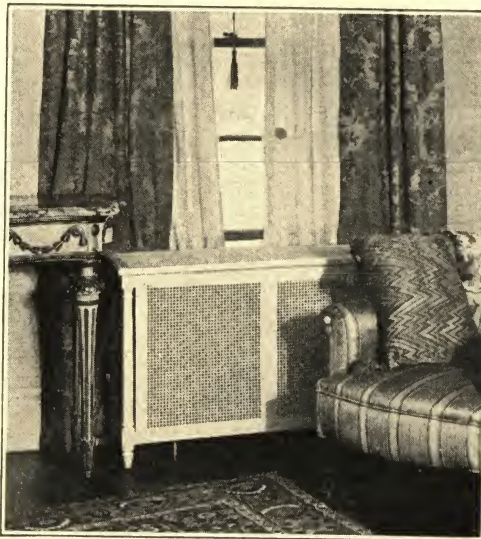
Some things make only for beauty, and are not one bit useful; a fern box cannot be called an essential, but it adds prodigiously to the beauty of the room, and beauty makes for happiness; so if a good-looking mahogany fern stand is placed at a window every winter day will be a brighter day because of it. A low magazine stand which will hold a goodly number of magazines and books may not be a necessity, but it has its useful side as well as its beautiful side. A small stand holding a bowl of flowers is not an essential, but it is a beautiful touch of color and makes for happiness. The home where happiness is not an integral part is not a home, so let us keep before us the necessity for supplying the little things which make for happiness in our home life.

It may seem as though we were working our problem of home making and furnishing backward if we purchase the furniture first and then consider our wall and floor coverings, but in many instances we who have



This Fireplace Fits Admirably Into This Room; the Figured Wall Covering Is Lovely and Happily Without Pictures. The Side Lights with the Attractive Shields Are Particularly Good

been housekeepers for a number of years are just filling in with a few new pieces needed, or mayhap we



A Grill Covers Much of the Ugliness of the Radiator

want to show to the best advantage and be as pleasing hung as when down. It is obvious that any picture placed on a plain wall will stand out in all its beauty, for there will be nothing to detract from it. Hang the same picture on a wall covered with a many-toned paper and it cannot possibly have the same satisfactory result; it becomes a part of a mixed and many times muddled whole.

One good picture well hung is preferable to many of no particular merit which only serve to clutter the walls.

If one hasn't good pictures and cares, rather, for the happy and bright coloring of flowered and figured walls, then there is no legitimate reason why one should not follow one's inclination. There are many unusually beautiful papers on the market which are a delightful decoration in themselves, and will be a continuous elation to the owners, but these papers should be used as a decoration and not as a background for pictures or tapestries.

#### Wall Paper Problems

IN buying good plain papers one may be as economical as one wishes or one may spend as much as the desire may dictate. Nothing is more delightful than Japanese grass-cloth, but it is not cheap. This most acceptable wall covering, however, has a most gratifying softness with just enough irregularity of coloring to make it agreeable and artistic. While the cost is rather high, grass-cloth wears remarkably well and will not need replacing for many years, and so in the long run is inexpensive. The plain papers of the type known as "oatmeal" are always inexpensive, but have the advantage of not looking cheap, for the colors are good and the texture excellent.

Volumes could be written about the desirability of paint as a wall finish, and at least three of its advantages over other finishes, the length of time it will last, the fact that it may be cleaned, and the certainty that any color or tint or shading of any color may be arrived at, make it stand out as the most satisfactory manner of finishing the walls. While we admit that paint will cost more at first, the initial cost is little compared with the length of time it will wear, mak-



The Bed-Time Story Told Before This Nursery Fireplace Would Be Enchanting Indeed





The Library May Be a Room or Only a Corner—But It Is Always a Magnet

ing it in the end the very cheapest of all finishes.

The beauty of painted and paneled walls has become an acknowledged



An Easy Chair Within Reach of Open Book Shelves, a Table, Reading Lamp, Book Rest and Ash Tray Give Generous Invitation to the Tired Business Man or Woman to Rest and Read

fact, and is adopted as the most gratifying and artistic manner of wall treatment. Walls treated in this way are self-decorative. If one owns a few good pictures, and reproductions of pictures of known worth are readily obtainable, paneled and painted walls make delightful settings for them.

#### Floor Coverings

WHILE there is a large range of choice in floor coverings, we will divide them into carpets and rugs, the first covering the entire floor and the latter covering a part or parts. Many housekeepers prefer carpets to rugs, and the housekeeper must be the judge herself; both are accepted as equal in beauty. It is a matter of personal choice entirely. I would suggest, only, that if carpets are used they be plain or in small patterns of the "all-over" type. Large patterns on the floor surely detract from the furniture placed on it, and I can think of nothing more trying to the nerves than a floor covering of splashy figures, a wall covered with brightly colored flowers and furniture upholstered too gaudily. The combination would drive any woman to mental unrest and unfeigned illness in short order. The room in which we live should be a restful one, and that is not accomplished by gaudiness, ever.

Let us reserve our dazzling colors for our draperies and a few chairs, if we must have them, keeping the rest of the room less intense. The hangings, a few pillows, a chair or two covered in a well chosen bright material, with the walls and carpets or rugs in neutral tones, will be a far better balanced room than we would achieve in any other way.

Speaking of rugs, do not think that I do not believe oriental rugs a suitable and lovely floor covering, for that is far from my thoughts, and not at all my meaning when I advise against figured floor coverings. Nothing is more beautiful than these rugs, with their softened colors and lovely texture, and nothing will be found more adaptable to the livable living room. Large rugs of this kind are greatly to be desired, but if one considers the larger rugs prohibitive in price it is well to buy small ones, one at a time if necessary and when the allowance will permit, purchase others until the required number is obtained. In this way one may own, with little effort and not much sacrifice, floor covering which stands at the head of the list of desirables.

If rugs are used, the floors themselves must be good. Hardwood is laid almost universally now, and is usually white oak. While this makes

ening it a trifle, for we have learned the beauty of darker floors, for in staining the beauty of the grain is never lost. In every room the ceilings should be the lightest part, the side walls a little darker, and the floors darker still, to obtain the best effect. Personally, I prefer rather deep color for the stain, more the color of walnut, and I find the room better balanced so.

#### Finishing Hardwood Floors

IF the floor is already down, and it is of hardwood but needs finishing or refinishing, it may be done by the handy man about the house, or, for that matter, by the "handy woman." Clean and bleach the old floor, sandpaper it, fill with a wood-filler and allow to dry, then give it at least two coats of good shellac. By no means buy a cheap shellac, for it is false economy, as it will not wear. After the shellac is thoroughly dry, wax with a well-known and reliable floor wax and rub well, using a weighted brush. If you are asking what is a bleach and filler, go to some good hardware store or

every three months if the wear is not so heavy.

The question of lighting the living room is of real importance, for, no matter how attractive the room may be in the daytime, if the lights—the lamps and fixtures—are not right, the room is a failure by night. Reading lamps on the tables should be so shaded that the light does not shine in one's eyes, but should not have the fringe or the sides of the shade so low that the light does not fall on the work in hand or the book when reading. Have you not tried to read or look closely at something when the fringe of the lamp shade cast a shadow across the printed page, making it almost impossible to distinguish the words, impairing the eye-sight and racking the nerves, to say nothing of spoiling the temper?

#### Where Comfort Is Supreme

IF there is one thing to be considered above another when furnishing and decorating one's living room, that one thing is comfort, and I am inclined to write it with a capital C.

This is the room in which the family congregate, and if the man of the house and the children are to find their own home place in the whole world, above all others, in which they love to be, then by all means make the living room a living room.

Houses today are heated by furnace, whether that furnace supplies heat for hot water or steam, but no one can claim that the radiators which bring that heat into our rooms are good to look at. And because that is true, let us make those radiators as attractive as possible without interfering with the heat. First, do not have gold or bronze or silver or even aluminum paint used on these useful but unlovely things. Paint them like the woodwork in the room. Make them as nearly a part of the room as possible, but do not make

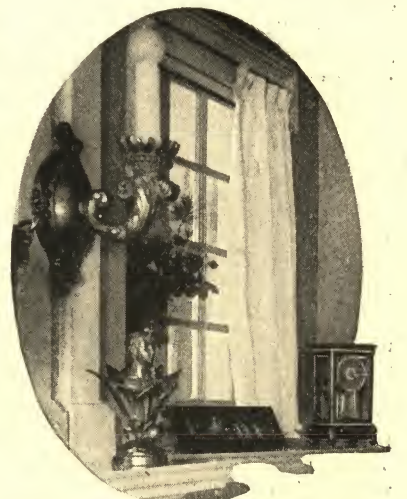


Low Built-In Shelves Beside the Mantel, with Space Above for Ornaments and Decorative Curios Provide a Cozy and Homelike Effect

a beautiful floor, if one must consider the cost carefully, chestnut, cut with an "edge-grain," will make a satisfactory substitute. The chestnut floor will be a little darker, but to my mind that only adds to its desirability. I prefer the darker floor, and if white oak were the one selected, still I would advise dark-

the housekeeping department of one of the better shops and you will be able to find them there.

If the floor is of soft wood the task, while much the same, is more difficult. Soft wood floors need constant attention. One should wax the floors at least once in two months if they are used constantly, and once



Ample Light for Reading Is Provided by Day or Night by This Large Window Over the Bookcase, Supplemented by an Electric Side Light





A Well Lighted Corner of the Living Room. with Built-In Case and Spacious Reading Table Makes for Beauty and Comfort

them stand out as though they were a part of the decorative scheme, as they surely will if gilded.

If it is expedient, have the radiators enclosed in a grill such as we are showing in one of the illustrations, which will be much better to look at. If one is building the house, low radiators installed under the windows with seats built over will be found a delightful way around a bad matter. These seats are lined with asbestos and, with cushioned tops, make the coziest sort of a place for the small boy or girl to curl up with a much loved book to while away an afternoon. I warrant that it would be a contested seat on which to do the homework for those attending school, as well.

#### The Hearth Is the Heart of Home

I WISH every home, whether that is in a house or in an apartment, might have a fireplace. Nothing adds so materially to the homey feeling of a room as a brightly burning fire on a snappy winter afternoon or evening. Not only is a fireplace a comfort in winter, but on many chilly evenings in the early spring and fall, before the furnace fire is started, is a real joy. A wood fire burning and snapping and crackling will prove such a source of attraction that the younger members of the family will be loth to leave it, but instead will urge their friends to "come over and sit by our fire." I can think of no greater compliment to the mother and homemaker than to have the children prefer to stay at home, disregarding the allurements of the out-of-the-home attractions.

Before we leave the subject of fireplaces, let us remember that there are fireplaces *and* fireplaces. There is a style for each style of room. A rough red brick fireplace placed in a room which cries out for a dignified fireplace and mantel of the Colonial type is a sad mistake. Because a certain fireplace looks

well in a friend's house it does not follow that it will be good in your own, unless, of course, your room is of the same style. By all means take the advice of your architect on

few articles on the mantel are better than too many. A good clock and a pair of candlesticks, well placed, always appeal to the sense of well-being. If there are side lights over the mantel, dispense with the candlesticks, using them somewhere else. One good vase or bowl of unusual ware, a piece of ivory or of bronze, any of these is good, but by everything which means good taste, not all of them. Do not spoil the good lines of a good mantel with small objects which will detract from its beauty.

The selection of the living room furniture is possibly the most important item, and the one which will go far towards making or marring that particular room. Oak or walnut furniture is preferable to mahogany. It is heavier grained and is made in more formal designs. Most bedroom furniture is mahogany, and it is a relief to have something else in the living room. By oak is not meant glassily varnished oak, nor mission furniture of box-like construction. Oak furniture should have a dark brown wax finish and follow the lines of some well proven period design. Nor by walnut is not meant walnut of mid-Victorian ponderousness of design, cornice heaped upon cornice and molding piled upon molding. Walnut should be of sim-

ple lines of brown color—almost green, what is known as Italian walnut, although the design may be French or English. Walnut may be inlaid with many other woods, the result being a delightful play of color tones over plain surfaces.

#### The Marble-Topped Table Transformed

MARBLE top tables are inhospitable looking affairs, perhaps because they have become associated in our minds with slippery horsehair and dust-ridden, toppling whatnots. The best thing to do with a marble table is to throw over the top a concealing piece of warm tone damask, edged with galloon and cornered with tassels. It is doubtful if the marble top will ever emerge from this disguise. Of course the table, legs and all can be painted a satin finish—a sage green, bordered by lines of darker green and soft yellows. It might be used then as a breakfast table, grouped with a quartette of chairs of the same period and of the same kindly painting. If painted furniture is used in a living room it should be a very small informal room, or else in the small pieces in a large room. A pair of painted consoles look well in a living room, but the color should be closely allied to the furniture.



A Writing Desk and Chair Are an Appropriate Addition to Any Library

those things which are for him to decide. An artistic room may so easily be spoiled by the addition of the wrong thing. Build with restraint and furnish with restraint.

Even a charming fireplace and mantel may be ruined if crowded with jim-cracks and nick-nacks. Too

construction. Oak furniture should have a dark brown wax finish and follow the lines of some well proven period design. Nor by walnut is not meant walnut of mid-Victorian ponderousness of design, cornice heaped upon cornice and molding piled upon molding. Walnut should be of sim-



Substantial and Decorative Book Ends Are Invaluable on the Library Table





This Is Ross Crane's Famous Aunt Matilda's Room

## Ross Crane's Good Work

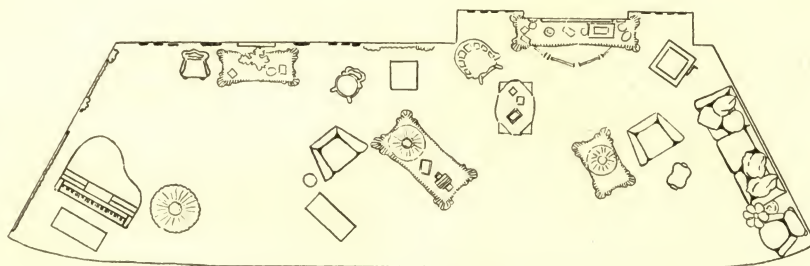
ONE of the most potent forces at work for the improvement of taste and standards in home furnishing and decoration is Ross Crane, Director of the Better Homes Institute, an educational extension movement originated several years ago by the Chicago Art Institute.

Mr. Crane has become nationally known as a lecturer on this absorbing subject. We are indebted to him for a striking example of an over-crowded and over-decorated room, photograph and floor-plan of which we take pleasure in showing. Mr. Crane is pleased to call this room "Aunt Matilda's room," and, after emphasizing the undesirable features, proceeds to rearrange the room as he considers it should be. The photograph of this rearranged room and the floor-plan is also shown, and through these it is quite easy to visualize Mr. Crane's telling points, points which each of us would do well to try to emulate.

Not only has this room been rearranged, but the non-essentials have been thrown out—presumably on the wood pile, for Mr. Crane feels that he must not inflict belongings upon his friends and neighbors which he does not want, or which he does not consider desirable.

One fact he would impress upon his listeners is that every household has a number of belongings which it could so well do without, and moreover that we all seem to have the distressing habit of buying things which are neither beautiful nor useful. I agree fully with Mr. Crane in his "religion" I was about to call it, of utility and beauty. There surely is no valid excuse for using things which are neither useful nor beautiful. Nor is there any logical excuse for cluttering our rooms, even if we do happen to possess certain pieces of furniture of substantial make which seem too good to throw away.

Why keep furniture just because we have it unless it fills a need and is beautiful and useful? A bare room is



The Floor Plan of Aunt Matilda's Room

## Good Taste in Room Arrangement

far more lovely than one filled to overflowing with nondescript furniture.

There are times when we feel that we must keep and use a certain piece of furniture because, as Mr. Crane narrated, someone gave it to you of whom you were fond. That is not a sound reason for ruining your room and your temper as well. It were far better to lose the friendship of the person in question, if it is so readily lost, than to destroy the harmony of your home and your peace of mind.

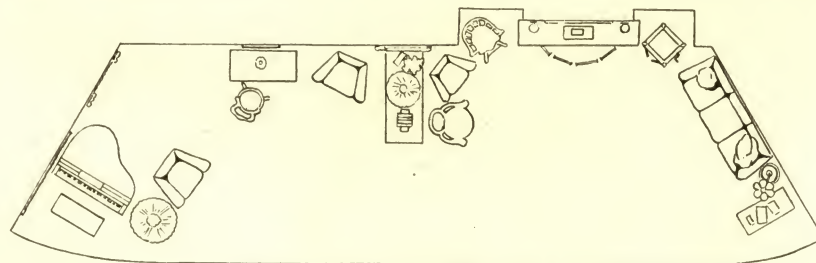
## Where Aunt Matilda Erred

I WOULD like to draw your attention to the photograph of Mr. Crane's "Aunt Matilda's room" and to the

patchiness of the walls, due to the placing of many photographs and pennants, and compare these with the walls of the rearranged room, with the few well hung pictures and the excellent tapestry. Few of us own good tapestries but no one will gainsay the beauty or decorative value of them.

Not only are the many blotches which are shown on Aunt Matilda's wall unlovely and insanitary but they are dust and dirt catchers. In this day, when every efficient housekeeper tries to reduce the amount of work, as well as knowing the harmfulness of dust-catching articles, these things are indeed out of keeping.

Lack of space in this large room of Aunt Matilda's is quite striking, and is



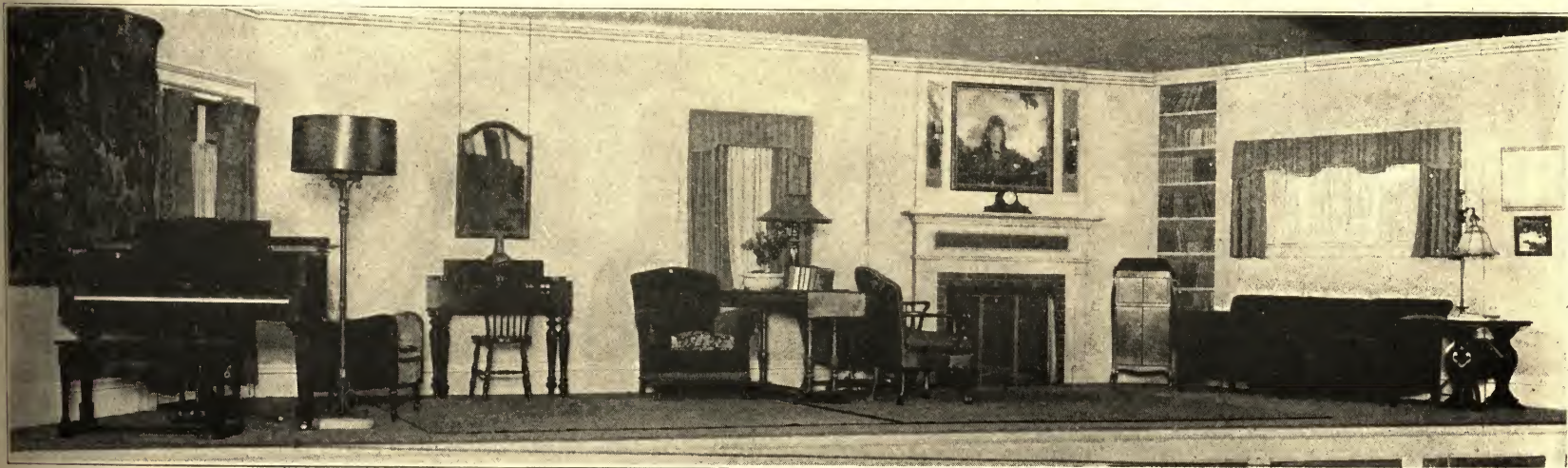
The Floor Plan of the Rearranged Room

due to the bunching of the furniture throughout the room, making it necessary, were one to walk through it, to weave one's way about in an uncertain fashion. Spaciousness and good taste as well as restfulness are dominant notes in the rearranged room; the center of the room being free, making it possible to go from one side to the other without stumbling over a number of objects.

You will note, however, in this newly-arranged room, that Mr. Crane has kept all the furniture needed for comfort and beauty. A large part of the good gained by a room such as this, is the sense of restfulness it gives to those who use it.

Restfulness is obtained mainly through the treatment of color. One cannot be too careful in using the proper colors and combination of colors. Brilliant colors are used in a room exactly as a painter puts the finishing touches of high lights in a picture. They have a magical touch, but, like all magical things, must be used with the utmost care and restraint. In planning the color treatment of a room it should be considered as a whole, remembering that each and every color introduced will have its effect upon the other colors. People do not seem to realize that far greater effect may be obtained by color than by ornament. As the effect is greater, so greater care should be taken in using color in decoration.

Have you not known housekeepers who persisted in covering furniture of good lines and beautiful woods with scarves and "throws," as they were at one time called? Good furniture is best unadorned. I do not object to a "runner" on the living room table, but it need not cover the entire table top and hang over the sides, nor need it be of the glaring sort which detracts from the beautiful finish and workmanship of the table. I would like to say here that if I were choosing a cover or runner for my living room table, I surely would not select one of lace. Lace is



The Rearranged Room, as You and I Like It, as Well as Mr. Crane, and Even Aunt Matilda





The Comfort and Contentment to Be Found with a Book Are Well Expressed in This Type of Easy Chair and Foot Stool with the Table and Lamp

always beautiful, but it will not meet the other requirements, suitability, nor is it serviceable for a living room table. Just now there is a fad for lace as table runners, but the fad has no foundation in soundness of judgment, unless of course one is buying for use in a formal drawing room which is not used for everyday purposes. Most mistakes we make in buying over-elaborate furnishings are due to the fact that they are advertised as being "the correct thing," and while they may be correct in the proper place they are not correct in every place.

I find no excuse at all for draping a mantel. If the mantel is not good, have it removed, but by all the laws of good taste do not hang scarves or tidies upon it.

#### The Principles of Good Arrangement

IN Mr. Crane's charming rearranged room the chairs are placed for comfort in reading and working, the lamps



The Library Desk Invites One to Both Read and Write and Proves an Invaluable Addition to Any Library

placed to give the best light to the greatest number of persons, and the furniture which he has retained has been kept because it is of service, every piece of it. The theme expressed in every lecture of Mr. Crane's is that simplicity and art go hand in hand.

When trying to arrange a room,

if we will keep in mind *not too much* of either furniture or hangings or pictures or vases, or anything, for that matter, we will arrive at a more happy solution of the home making problem that we could have in any other way.

When selecting our

cause they were good then, and not for any other reason. Being a hundred years old does not make them good, for if they had not been of excellent lines and well made they would not possess excellent lines nor would they have stood the years of wear. Beauty does not change; tapestries and velours of beautiful colorings are as beautiful today as when first used, for colors which were bad ten, twenty or thirty years ago are just as unattractive today. Good furniture, good floor coverings and good colors do not go "out of fashion." The lovely things my grandmother owned are lovely now. Has the charm and beauty of the Windsor chair ever diminished? Not one iota. The Windsor chair is made for comfort, the lines wonderfully lovely always.

#### Lamps and Lamp Shades

I WAS about to say that one could not have too many lamps, but I fear that would be exaggerating slightly; one *could* have too many, but one sel-



For the Individual Library This Chaise Longue by the Open Shelves Strikes the Right Note

dom has as many as one either wants or needs.

Lamps are truly decorative if of the right sort, and if one who is thinking of purchasing a lamp, or more than one, will just walk through the lamp department of any of the good shops, one will immediately realize that it is hard to find an unlovely lamp. Of course, it's possible to find ugly ones, but they are by no means in the majority, but thankfully in the minority.

Lamps for every conceivable place and every possible room are to be found, most of them so good to look at that we find it hard to curb the desire to own them in quantities.

The reading or table lamp is the type which we are most in need of, for by it we not only read, but sew and study, and in most cases light our room.



The Fireside Bench Is One of the Completely Satisfying Places to Lounge While Reading

These lamps are shown in mahogany, plainly turned or elaborately carved, in gilt and in enameled wood. They are shown in rare china and pottery, in brass and in bronze; in fact, there is a lamp to fit each scheme of decoration, and each color we may want. There are chair or "bridge" lamps in wood, brass and wrought iron, there are floor or "piano" lamps in mahogany, gilt or enamel, and there are the smaller ones known as "boudoir" lamps, bedside lamps, desk lamps and the occasional lamp of almost any known material. Besides the real lamps, there are candle sticks fitted with little flame-like burners which are much, much less trouble than the original.

#### Placing Lamps Properly

A floor lamp, or piano lamp if one prefers that name, is most acceptably used at the side-back of an armed chair or at the side of the piano to cast the light-rays on the music. The bridge or chair lamp may be used at the chair side, if one likes a low light directly on the work or reading, as the name suggests at the side of the card table.

What a convenience and blessing a lamp is on the table at the side of the bed, so easy to turn on at a second's notice, and as easily turned out if one has the comfortable habit of reading in bed.

The little lamps or candles which stand on the desk and throw just enough light on the very spot where it is needed are a delightful acquisition for the living room, library or bedroom, wherever a desk is placed.

After one has acquired the lamp there is always the question of the shade to be settled, sometimes we feel that the commercial shade is beyond us, financially, and if that is so, it were well to make them at home. That is not as hard as it would seem. Let us see:

The parchment shade is al-



This Type of Comfortable Chair with Its High Back will Fit Into Any Library Arrangement

ways good, if not over-decorated, and these shades may be purchased unpainted and decorated at home if the housekeeper is able to paint.

The frame, silk, fringe, tassels, frilling and all the many things which go into the making of the silk shades are obtainable in the shops.

The first thing to be done is the winding of the frame. This is necessary for two reasons; first, it covers the wires and prevents the wire rubbing through, and second, it gives a foundation to sew to.



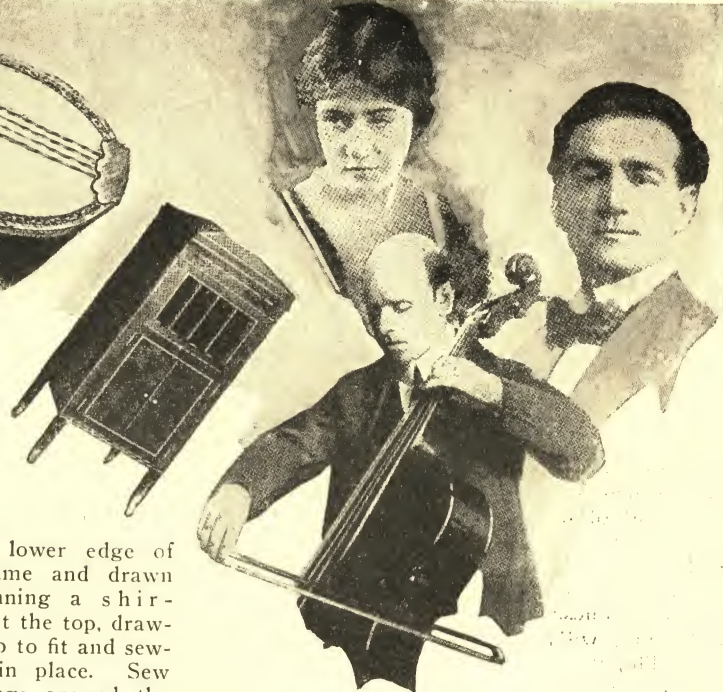


Whether the shade is to be lined or not depends upon the desire of the one who is making it. It is wiser to line a silk shade, but some are made unlined. The wrapping of the frame must be carefully done, being careful to turn the edges under, if the strips are cut. It is better to use the silk binding ribbon such as dressmakers use if the shade is to be unlined. This silk binding is obtainable in all wanted colors.

Silk should be cut in pieces the depth of the shade, and sewed together with a French seam, fastened

at the lower edge of the frame and drawn up, running a shirring at the top, drawing it up to fit and sewing it in place. Sew the fringe around the bottom, cover the heading with a gimp and sew that well, then finish the top with the same gimp.

Lined shades are sometimes covered with Georgette crepe.



### *Music's Place in the Home*

**I**F we would keep our young people happy and keep them at home we must appreciate fully the eminent place musical instruments hold in the furnishing and equipment of the home. Not many homes today are without pianos or phonographs or talking machines.

Every normal child loves music and everyone who has talent should have an opportunity to learn to play some instrument. I cannot imagine a happier situation than having one's children and their friends gathered about, working out some pleasing

arrangement by one of the better composers. There is not only the great benefit derived for the performers themselves, but the pleasure they give to others by being able to render good music creditably is immeasurable.

I lay stress on good music, for I believe in the harmful effects of the noise we hear called "music" so often, and when the mothers awake to the truth of that, I feel quite sure that we will have more music which is uplifting and less of the degrading stuff we are forced to hear today.

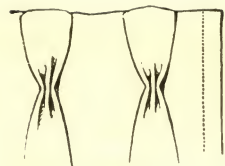
It will require the concerted efforts of the mothers to accomplish this, but it can be done.

I should feel it incumbent upon me to

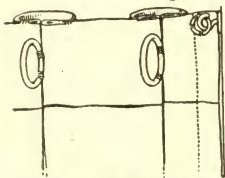
give my child an opportunity to learn to play some instrument, allowing the child his choice, however, if he or she has one. No good thing is acquired without effort, and, of course, no one becomes a musician without work. The long hours of practicing are arduous, but I am quite sure that each person who has been driven to practice during those childhood days when play was such an alluring thing, will thank the then considered over-strict parent in after years for what seemed great harshness at the time. When the more mature years arrive each one of us is grateful if we have had the stick-to-it-tive-ness of hard work, which is the requisite if we "arrive" as a performer. No one arrives at success in any field without strenuous work and faithful application. Even though it does require long hours of work to learn to play some instrument well, still it pays and pays royally. Until the harpist has attained the place where she is competent to play with others she does not get the real joy out of her work, neither does the performer on any instrument. The elation of the pianist who is able to accompany a singer or cellist or violinist and do it acceptably is payment enough in itself for the long hours of practice. The singer who has learned to use his or her voice correctly will find no other compensation needed other than to be able to sing freely, clearly and joyfully, knowing with a surety that the voice responds to the will. The pianist who becomes proficient has had hours of backache and tired hands and more tired arms.







FRENCH HEADING, FRONT VIEW



FRENCH HEADING, BACK VIEW

NO one thing does more to make or mar a room than the treatment of its windows. Almost any suitable material if rightly handled, can be effectively used in any room in the house, provided only that in richness or simplicity it is in keeping with the other furnishings. The window itself will be considered in determining what the general treatment is to be. The other furnishings of the room will influence the quality of the fabrics to be used.

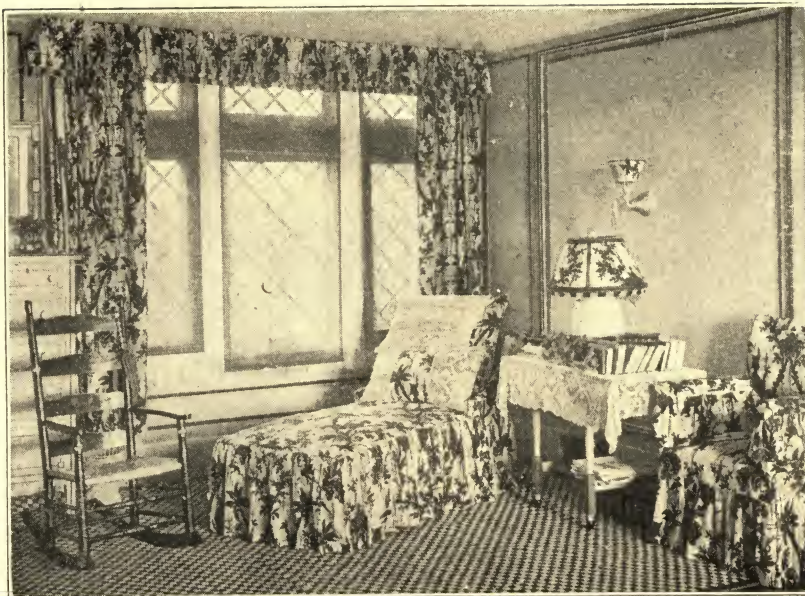
Some of the things that claim the attention before the curtains can be decided upon are the outlook, whether the exposure is cold or sunny, the general use of the room where the curtains are to be hung, and its own peculiar size, shape, architectural value and limitations. If the outlook from the windows of a room are displeasing or monotonous, or if the gaze of passers-by or too near neighbors needs the protection of a screen the use of the inner glass curtain will be necessary.

#### Treatment of Glass Curtain

SINCE glass curtains are supposed to cover the glass and not be drawn back, they are given a rod to themselves and do not extend above the glass nor below it more than is necessary. In length they should just clear the window sill and never in any case fall below it. The rod on which they are run at the top should be fastened at the base of the upper window trim, and usually, instead of being attached by rings, the glass curtains are cased on their rods because they are thin enough to do away with the necessity for pulling back and forth, and if they are needed at all these curtains are hung in the way they are intended to stay.

The treatment of the sheer white ruffled muslin curtains at the windows of the small Colonial type are the exception to the rule that glass curtains should never be draped back. These are decidedly more attractive when drawn back slightly and held in place with ties of the folded muslin. For the quaint Colonial house this particular kind of curtain looks most attractive from without, and also from within if the very simplest kind of side drape is chosen, or if no over drapes are used.

A simple and pleasing treatment for the inside of the glass Colonial doorway with the fanlight above is by using the same sheer muslin as was used for the curtaining of the windows. Both the door curtains and the side windows are cased in brass rods that are stretched at both top and bottom close to the window pane, an arrangement that keeps the curtains in place. A heavy wire frame should be made to fit the semi-circular window of a fanlight. The material can then be easily attached



A Charming Use of Cretonne

## The Home in Detail

By MR. AND MRS. PRESTON F. GASS

to it and the wire frame adjusted to the window.

There should be a pair of glass curtains for each window and they should be hung with fullness with almost no noticeable space between the parts.

Where the window opens out on to a smooth stretch of lawn, a lovely garden or any other beautiful view and there is no need for protection from passers-by, glass curtains should be dispensed with entirely and the windows arranged becomingly without them. The old-fashioned "lace curtain" and the filets with insertions, medallions and other ornate laciness have been relinquished in favor of plain materials with unpretentious hem silk gauzes, plain net, sheer linens and sun-proof materials. If a shrinkable material is used for the glass curtains, two or three thicknesses may be folded into the casing as the curtain is being made. These may be let out after washing, for a glass curtain shrunk too short would have to be discarded. The rods used should be slender, but the casings must be made wide enough to slip on and off with ease and there should usually be no headings. If a casement window or French door are to be treated with glass curtains, or if the glass curtain is to be used alone with no other drapes and is cased both top and bottom on rods, then a heading may be used with success.

The tendency to use colored materials for the glass curtain rather than a pure

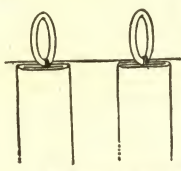


A Tapestry Combination

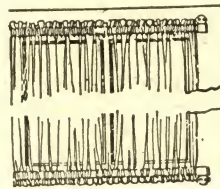
white is growing, and when color for these curtains is decided upon the house exterior should be considered. Stone or light gray stucco houses would demand different colors than the painted or red brick house. The latter could be improved only by cream pale grays or white in the curtaining, while soft orange, rose, maize or other harmonizing colors will be suitable for the former if the interior color scheme should demand them. The house must be treated as a whole. Curtains that give certain value to one room and curtains that give a different value to an adjoining

room are never in good taste and are displeasing from the outside.

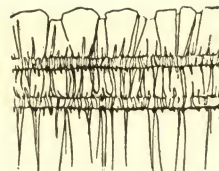
Now that the crude white of the glass curtains has given way to the more interesting soft toned materials, not only is the light coming into the room softened but a tone which will harmonize with its particular color scheme is diffused all over the room. It is surprising how much difference this one detail in color harmony will affect the final



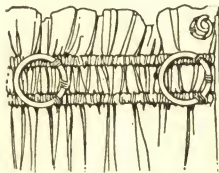
BOX PLEATED HEADING



FLAT SHIRRING, TOP AND BOTTOM



HEADING SHIRRED OVER CORD, FRONT VIEW



HEADING SHIRRED OVER CORD, BACK VIEW

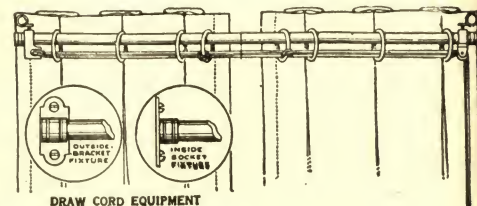
result of a decorative scheme, not only in the daytime, when sunlight filtered through a beautifully toned fabric is always effective, but at night, also when artificial light thrown on the softly colored curtains does much to enhance the beauty of the room.

There are three methods of treatment for the casement window. First, the casement curtain which in itself answers all the requirements of the window, being drawn back at the sides so as to leave the window glass exposed, or drawn over the glass as its needs demand. Second, the casement curtain together with more decorative side curtains, in which event the former is hung inside the window casing where it takes the place of a fixed glass curtain, so that the windows themselves may be covered or uncovered at will. Third, where a simple casement curtain is hung on the outside of the wood trim, taking the place of a more formal side drapery and made to draw over the glass curtains only at night. However, the arrangement of the casement they should be of an unlined curtain material and be made to hang straight and full.

#### Length of Drape Optional

IN the matter of side drapes it is important to decide whether the windows are to be treated individually or as a group and whether they are to extend to the floor, which is the formal length or to the bottom of the window trim, which is usually three or four inches below the glass curtains. The shorter length of course requires much less material, makes a homier and less formal appearance and is easier to manage artistically. When the ceilings of the room are low, or the beamed ceiling is used in its construction, the longer drapes may prove more attractive and will have a tendency to make the room seem higher.

In many rooms there occur one or more pairs of windows or a group of three or four, a bay window or a three part window, with one wide section flanked on each side by a smaller one. In any of these cases it is usually a better plan to regard the group as a unit in so far as the side draperies are concerned. If



DRAW CORD EQUIPMENT

glass curtains are used in the treatment of these groups each individual window should be given its individual glass curtain.





Informal Comfort Is Depicted Here



Rustic Simplicity in Keeping

## Porches and Porch Life

IF there was ever a time when that great American institution, the front porch, waned in its popularity it has now come back into even greater prominence than before. It has become the symbol of summer hospitality where neighbors, or friends from a greater distance, may drop in without formality.

Fresh air and outdoor living are coming more and more to be recognized as important aids to health and enjoyment. The family that has a large and well equipped front porch may desert the regular living quarters for the cool and more inviting veranda during the hot months and virtually live outdoors. With the wide variety of furnishings that may now be procured for the various porches the family may eat, sleep and enjoy its leisure hours in reading or games without having to go indoors.

No more alluring picture of summer comfort can be provided than that given by a spacious veranda well provided with easy chairs and upholstered swings with cool appearing grass rugs or mats covering a part of the floor. Reed or wicker furniture which is light and cool is the most appropriate as porch furniture. Hickory chairs and tables in rustic designs will also fit in well in most porches.

An almost unlimited variety of designs and materials for porch furniture is now available. The manner in which the furniture may be selected to harmonize with the rest of the house as well as the surrounding grounds is well shown by a comparison of the illustration at the bottom of the page and that above to the left.

The porch pictured in the lower view looks out over an elaborately

arranged formal garden. It is part of a house that corresponds to such a garden and calls for formal treatment. The four reed chairs designed in the hour glass pattern fit in well in this environment. The reed table with the tea pot gives a suggestion of summer hospitality that adds the needed touch of livableness and use.

### A Rustic Harmony

THE veranda in the upper picture is a complete contrast. It is the out-of-door living quarters of a country home in the woods. The hour glass chairs of the more formal porch would clash as unpleasantly here as the rustic hickory chairs and settee would against the stuccoed pillars and sunken garden of the estate in the lower illustration.

The hickory furniture is in precisely the right tone to harmonize with the more rustic veranda, however. The curved arms of the hickory rocking chair and settee give almost irresistible invitation to sink into the cushion covered seats. The hickory table with a cretonne cover and books and magazines scattered over it give an appearance of use, as does the reed bound refreshment tray in the foreground.

The masses of native leaves and bouquets of wild flowers used as decorations also harmonize well. The bamboo stick with notches cut in it at intervals to hold flowers is an attractive wall vase contrivance easily made at home. It is just these little rustic touches which give the proper atmos-

phere and help welcome the guest.

### A Well Placed Porch

A HAPPY medium between the extremes of formality and rusticity is shown in the porch above to the left. A canvas porch swing with padded seat and back and a liberal supply of pillows is a prominent feature of the furnishings. The chairs and table are a combination of reed and willow, giving a hint of rusticity without sacrificing the more delicate lines made possible by the use of pliable material.

The placing of this porch is worth noting. It is between two and three feet below the floor level of the house, permitting the casement windows of the room fronting on the porch to be opened without interfering with activities on the porch. The terrace suggestion of this separation of levels between the house and the porch is carried further by the use of bricks as a floor.

Additional comfort is given this porch by having it screened in. In most parts of the country screens are an essential to full enjoyment of porches. If they are not provided flies and in many sections mosquitoes interfere materially with comfort, while at night more mosquitoes, and if there is a light moths and other insects are apt to make the porch untenable.

The framework holding the screens may be made a permanent part of the porch so that when the screens are removed with the advent of cold

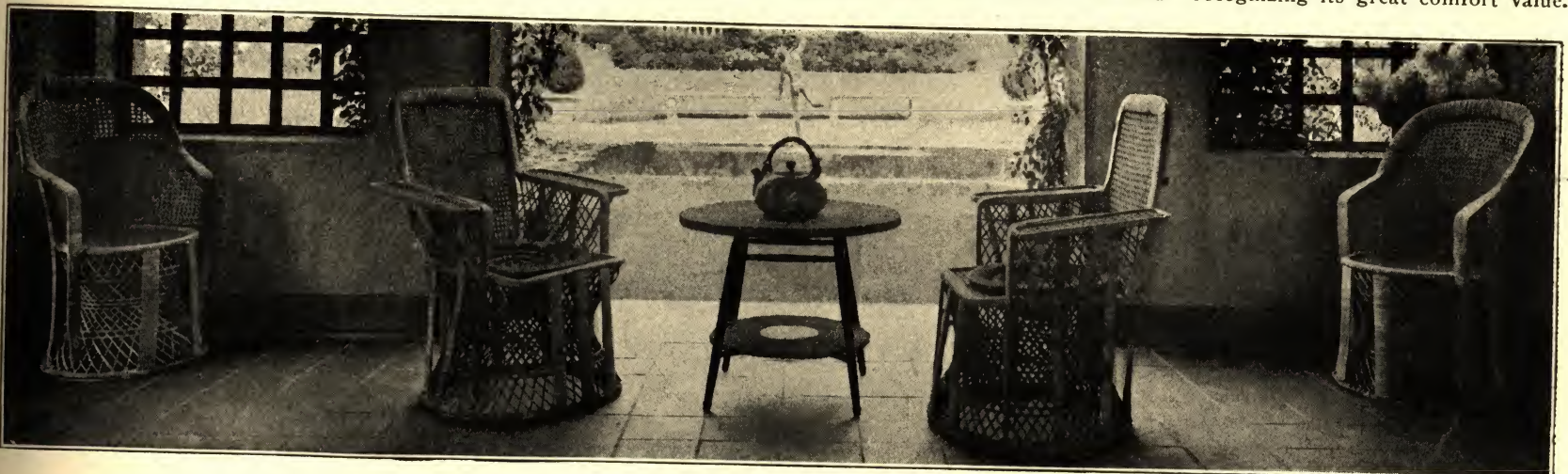
weather glass may be substituted, making the porch available for use throughout the year.

The sewing basket placed on the supports under the table and the ash tray fastened to the table in easy reach of the swing suggest pleasant activity and leisurely enjoyment of the furnishings of this porch by all members of the family. Such a porch may serve the mistress of the house as a summer sewing room, especially where one of the easily portable motor-driven sewing machines is among the household possessions.

Where a porch is used virtually as a summer living room it is usually advisable to have canvas curtains at the sides and front which can be rolled up by the use of cords and pulleys when not in use. In case of storm they can be rolled down and fastened in place to prevent rain from being driven onto the porch by the wind and injuring the furniture. Such curtains can also be lowered to act as a shield from the sun when it would otherwise make the porch too hot for comfort.

If one cannot afford awnings, they may be well substituted by the use of vines. There are a number of vine varieties which grow very easily, and besides being sturdy and producing much shade, are an added attraction to any porch if properly trained.

Unhappy must the owner of a home be, then, who is without the comforts and joy of such a haven—the front porch. So many times the greatest attraction of the home is lost because it lacks this one important item on account of the owner not recognizing its great comfort value.



A Formal Arrangement Which Harmonizes with the Garden Without



## Sun Parlors



Casement Windows of the Best Type

SUN parlors are the half way station between outdoors and the house interior, and the plans for furnishing them should suggest this. They may appropriately have porch chairs, swings and other outdoor furniture, yet a bookcase or two and a settee or day bed are not out of place. Folding casement windows may be opened in warm weather and make it virtually an outdoor sitting room, but in winter the windows may be closed and the heat turned on, making it a comfortable indoor living room.

The sun parlor is thus fashioned to give all the advantages of the old front porch and eliminate its disadvantages. Most sun parlors are planned to give more privacy than that enjoyed by the front veranda. For that reason they are better adapted to living conditions in the cities and larger towns where one desires to be secluded from the numerous passers by. They are usually better protected from weather conditions than a porch so that they can be furnished more like the interior of the house.

It is well, however, in the furnishing scheme of a sun parlor to carry out the porch idea to some extent. Grass rugs are more in keeping with

the character of the room than a carpet would be. Flower boxes and potted plants, which will usually thrive in the full play of sunshine afforded by the numerous windows, are also a pleasing part of the furnishing of such a room, especially in the city, where flowers and growing things are comparatively scarce outside.

The suggestion of out of doors may be carried further by having a trellis and vines as in the sun parlor shown at the bottom of the page. A box of earth is placed on the floor and the vines grow from this along a trellis placed against the wall. The wall in this case, as in many sun parlors, is of the same material as the rest of the house exterior, assisting in this way in the impression of being outdoors.

### Gay Colors Welcome Here

THE sun parlor is the one room in the house where a passion for gay colors can be given full sway. The bright light from the profusion of windows, and the feeling of spaciousness given by views to the outside through the greater part of the wall space, permit an amount of bright coloring that would be far from pleasing elsewhere in the house. Airiness and brightness are the note to be struck, and hangings and cushions of gayly figured cretonnes are in wide demand for this purpose.

Venetian blinds, which may be let down to give shade when the sunshine is too bright, but offer little obstruction to the flow of air, are the most desirable window protection. As the windows may be closed in case of storm, heavier curtains are not

needed. Like a well furnished front porch, the sun parlor is likely to prove the magnet drawing all possible family activities to it. It may serve as sitting room, den, lounge library and sewing room all in one, and the furnishings would do well to suggest all these uses.

The sun parlor before referred to shown at the bottom of the page is a good example of an appropriately furnished room of this type. The two reed chairs and the reed table are appropriate for porch and outdoor use. The cretonne cushions on the chairs match the covering of the couch and pillows. A reading lamp on the table helps to provide a library corner, while a phonograph gives facilities for music. Movable ash trays give an additional inviting note to the furnishings.

### For Daytime Use

IN many households where there is no spare bedroom a day bed or couch convertible into a full sized bed at night may be placed in the sun parlor. This parlor will give more privacy than most other rooms turned into emergency bedrooms. With the windows open the sun parlor can serve as an excellent sleeping porch and provide for the extra guest.

In many house designs the sun parlor is merely an alcove of the living room. In such cases it calls for treatment harmonizing with the living room, and yet distinctive enough to suggest its independent character as a sun parlor. The contrast between the furniture and the hangings in the living room proper and the alcoved sun parlor, which is really an extension



Tea in This Corner Is a Cheerful Rite

or addition rather than a separate room, must not be too violent else it will detract from the attractiveness and charm of the living room. Rather than the gay chintzes and cretonnes which usually appear to good advantage on the sun parlor one should use plain materials that harmonize with the color scheme of the living room, but possibly of lighter weight than the hangings in that room. Less informal furnishings will be used than would otherwise be employed in the sun parlor and while one or two chairs of reed or wicker will undoubtedly fit in, some of the more interesting old Colonial spindle or ladder back easy chairs or the rush seated and Windsor chairs will be more dignified and in keeping with the furnishings of the inner room.

Another use of the sun parlor is suggested in the view shown in the upper left hand corner, where it serves as a breakfast room in hot weather. This sun parlor has a door leading to the dining room, so that it is convenient as an auxiliary. A flowered Japanese screen relieves the roughness of the outside walls in the corner back of the table, giving an attractive decorative effect.



The Furnishings of This Room Are as Sunny as a Summer Day





A Clever Arrangement of Windows Protects Against Storm

**SLEEPING** porches, if well planned and properly equipped will make it possible to combine the pleasure and healthfulness of outdoor living with the comfort and security of home. If the necessary protection against wind and snow is provided a porch may be used comfortably for sleeping even in zero weather.

With a comfortable bed and a sufficiency of blankets no place can equal the out-of-doors in affording refreshing sleep, in any season of the year. On a porch that is screened in summer to keep off disturbing insects and glassed in with casement windows in winter to keep out snow and severe winds, the modern householder has a bed chamber better fitted to provide sound and invigorating slumber than any possessed by kings of the host.

#### Location Is Important

**MOST** discomforts complained of by those who do not like sleeping porches are caused by insufficient provision for the conditions that must be met. The sleeping porch is best located under a roof with a wide overhang that will help to shelter it from storms. A south exposure is desirable, as it is then sheltered from the coldest winter winds and is open to the southerly breezes which bring the hottest summer weather.

Unless it has windows which can be closed in case of rain it should be equipped with canvas curtains which can be rolled up when not in use, but can be lowered across the opening of the porch and fastened in place during a rainstorm. If there is a wide overhang of the roof and the porch is in a sheltered location ordinary rains will not reach the interior of the porch, but the porch sleeper must be prepared for all weathers and summer thunder storms are apt to be accompanied by heavy rain and wind driving in from almost any point of the compass.

Canvas curtains of this sort may make a sleeping porch available far into the winter even when it is not glassed in. The curtains may be lowered down on the windward side and fastened securely in place. With the direct force of the wind thus eliminated and an adequate supply of bed clothes the porch is a comfortable sleeping place even when the temperature is far below freezing.

The commonest cause of discomfort in outdoor sleeping in cold weather is due to insufficient bedding beneath the sleeper. Often a comparatively thin cot mattress is used to sleep on, while a mass of blankets is piled on

top. The outdoor sleeper would be both warmer and more comfortable if some of these blankets were placed under him in addition to the mattress. Layers of paper between the mattress and the springs of the bed will assist in keeping the sleeper warm. They will also protect the mattress from possible rust from the springs.

Night clothing designed for outdoor wear is also important in assuring comfort. Flannel pajamas provided either with enclosed feet or with bed socks that can be tied at the ankles will keep the feet comfortable in the severest weather. On the coldest nights a hood of the same pattern used by aviators may be slipped over the head and tied around the neck.

Sleeping bags are an advantage in cold weather in that they guard against any openings between the upper and lower bed clothes through

which cold air currents might come. They are also easily carried into the house where they may be stored during the day and kept warm until they are put on the bed at night. If this is not done it may be found advisable to place a hot water bottle or other heating device in the bed shortly before retiring in order to take off the chill, as cold mattresses and bed clothes may otherwise cause discomfort in extremely cold weather.

#### Glass Panes Invaluable

**I**F a sleeping porch is glassed in many of these precautions will not be necessary, as it can be protected from the severest cold. In many houses also the sleeping porch is provided as an addition to the regular bedroom so that it can be used or not as desired. In households where there are chil-

dren such a sleeping porch is especially advantageous as part of the equipment of the owner's bedroom. The children can sleep outdoors on such a porch for the greater part of the year and still not be too far removed from their parents. Great economy of space is possible by this means, as several cots for the children can be crowded into such a porch without danger. The unlimited supply of fresh air from outdoors will assure their health even in crowded quarters.

With the protection of windows in the sleeping porch additional furniture may be introduced and it may be used as a sitting room or study as in the room shown below. Curtains at the casement windows soften the outlines in this room and the light colored reed furniture aids in giving it a sun parlor effect. There are twin beds made up with bolster pillows in day bed fashion. The reed fernery, with growing plants and a trellis back of it, adds a pleasing note, while the reed table, lamp and chair are all in harmony.

Every home should today be equipped with a sleeping porch. They not only add to the attractiveness of the home, but from a health standpoint they are invaluable. Many tubercular cases could be avoided if more persons slept out-of-doors. If the space allotted to a sleeping porch is a small one, a good idea is to use "double-deck" beds. These are arranged as the berths in a Pullman, and can be either stationary or made to swing back out of sight during the day. In this manner a number of people may be accommodated.

The sun parlor has surely proved popular of late. Most up-to-date apartment buildings are equipped with such a room. These are just as valuable as the sleeping porch. They are naturally greater attraction to a home than the sleeping porch on account of the furnishings. The barren look of most sleeping porches is taken away by the cretonne curtains, pillows and coverings of the daybed which furnish the sun parlor. For those homes having only one living room, the sun parlor is often used to entertain guests when serving tea or chatting informally. The sun parlor may be made attractive by the use of ferns, flower boxes or even a standing bird cage. The pet canary would feel much at home in such an attractive place.

When remodeling the home it is always easy to add a sleeping porch if one is not already provided. It may be built upstairs where the house has, perhaps, a poor angle.



Daybeds Help Toward Sunparlor Effect





An Electric Motor Does the Heavy Work

**I**N many houses a separate sewing room is both impracticable and quite impossible, especially in the city apartment or the modern bungalow. But in this day of ready-made clothing, when sewing in the average household means seasonal sewing for the children or the remodeling and mending of clothes already made, a substitute sewing room in one of the largest bedrooms or in the corner of the dining room can be made available.

A definite place, however, should be arranged where all the sewing equipment can be kept ready for immediate use and so assembled that its use will in no way interfere with the other activities of family life, nor result in a disorderly corner of the house. With a little care and thought, and only a small outlay of money the small conveniences, which will go far toward accomplishing these ends, can be attained.

#### Electric Machine Convenient

**F**ORTUNATE indeed is the housewife who can purchase one of the electrically operated machines, which is designed in almost every period style so that it will fit in with any type of furniture in any room desired. There is the table-desk model, which is a most attractive piece of furniture for the living room or bedroom and is serviceable as a desk or as a table when not in actual use as a sewing machine. When the machine is in use there is ample working space as well as a cutting table, which is hinged to the main part and folds back when needed. There is also a very pleasing and graceful console model which takes a definite part in the furnishing of hall or dining room if it is more desirable to do the work of sewing in one of these rooms. It is possible to purchase the electric motor attachment for a very reasonable price, with which to operate the old-fashioned tread machine, and whenever possible to operate electrically the expenditure is more than justified.

The sewing machine, the most necessary piece of equipment and the one thing in almost constant use, unless it be one of the power

machines described, must necessarily be kept in one place and usually in sight, so if a corner of the dining room or owner's bedroom is used its unsightliness may be hidden with a fitted cover. This cover should be made of the same material used for the over-curtains at the windows or the couch or bed covering if these are of chintz or the appliqued linen or muslin so much in vogue at present. The material for the covering should be fitted smooth to the top and brought down the sides two and one-half inches, making seams at each corner to take out the fullness; then a strip of the cloth should be measured off that will come within an inch of the floor and gathered or pleated onto the edges of the smooth upper part. Such a covering will be a protection against dust and the sewing machine can now be used as a stand for a plant or magazines or other things according to the room chosen.

#### To Avoid Litter

**T**HEN, to avoid the attending litter of every little sewing and to prevent the continuous cleaning of threads from the rug, a piece of enamel cloth or a square of good quality cambric or denim can be spread down over the portion of the room where the sewing is to be done. Time and labor can be saved by having two ends of this cloth fastened to a stick so that it may be rolled up quickly and also in order that it may keep in place better while stretched on the floor.

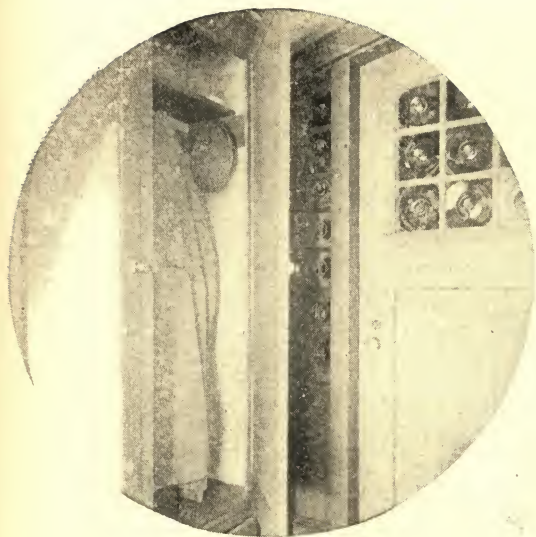
There must also be a compact and convenient way for keeping the small sewing equipment together. If a bedroom is chosen as the sewing room substitute, a home-made sewing stand can be manufactured from wooden boxes, obtainable from the grocer at little or no expense, which will fit into its allotted space and which can be made to harmonize with the other furniture. Another way of accomplishing the same result is by the use of a folding screen which can be covered with material to fit in with the color scheme of the room used for the permanent sewing place.

## The Sewing Room

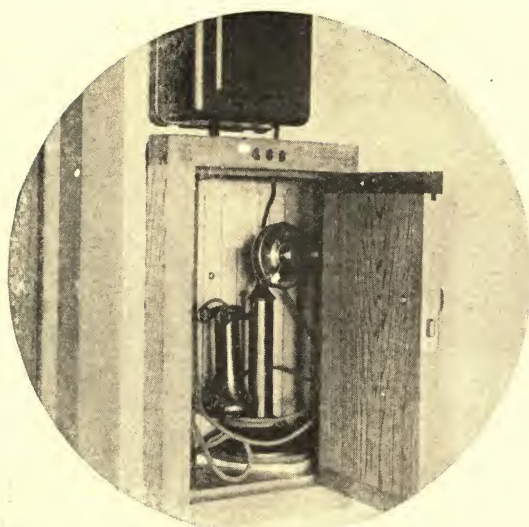


A Sewing Room Closet Saves Many Steps





For Outdoor Garments



A Telephone Cell



An Attic Storage Place

THE old axiom, "A place for everything and everything in its place" is an important one in the well ordered household. Reduced to terms of house plans it means a sufficiency of well placed and well equipped closets. Without enough closet space necessary articles must be stowed away in odd corners, giving the cluttered appearance which good home-makers seek to avoid.

#### Near the Front Door

TO begin at the beginning of the closet needs an ample coat closet near the front door is an untold convenience. It should have space for hangers for the outdoor garments of each member of the family and may also have a zinc lined receptacle for wet umbrellas and a place for rubbers. If there is an entrance hall, such a closet can be planned in connection with it. If the front door opens directly on the living room, provision for a coat closet is more difficult. One may be built in beside the door, however, as shown in the illustration in the upper left hand corner of the page.

A small alcove for the telephone near the front door is also a convenience. It is necessary to have it where it can be conveniently reached by any member of the family, but if left in the open is likely to be frequently knocked over. A cabinet of the sort pictured on this page furnishes a convenient resting place for the phone when not in use and at the same time provides for any memoranda or lists of telephone numbers that may be needed in connection with it.

When we come to the kitchen most housewives find a number of small closets built for special articles preferable to one large one that is apt to be merely a catch-all for everything. A closet enclosing a built-in ironing board, one for mops, brooms and the vacuum cleaner if the household pos-

sesses one of these valuable aids to cleanliness, and a small cupboard near the sink for kitchen supplies are desirable. Kitchen closets are a whole story in themselves, however, and are considered more in detail in connection with the discussion of kitchens.

A large and well aired linen closet is an important part of the household working equipment. It is worth sacrificing other desired features in the house to have this closet on an outside wall so that it can have a window admitting light and air. Without this means of ventilation it will be both dark and stuffy instead of a delightful place to store the clean household linen as it comes from the laundry.

If the linen closet adjoins the bathroom, the most convenient place in many house arrangements, it may be used for the storage of linen for the bathroom also. If not, a built-in closet in the bathroom is desirable, saving the housewife many steps.

An abundance of shelf space is important in the well planned linen closet. A case with a number of sliding trays to hold sheets, tablecloths, pillow cases, etc., is a satisfactory contrivance for the compact storage of the household linen. These trays are open in front so that their contents can be seen at a glance, but have high sides and back to keep the linen in place.

The most convenient size for such trays is 19 by 36 inches, giving space for one pile of sheets and one pile of pillow cases. If more space is available they may be 26 by 32 inches, providing for two piles of sheets. If space is limited, however, shelves measuring 15 by 28 inches are large enough to hold one pile of sheets or three piles of pillow cases.

A sliding shelf should be provided at a convenient height to place linen while sorting it, and below this can be placed the drawers for storing less frequently used pieces.

Closet space of some kind must

be provided in each bedroom. Here again the need for ventilation is important and is too often neglected. If it is impossible to provide a closet with an outside window it is better to forego it altogether and have a built-in wardrobe that can be easily cleaned and ventilated. Without an outside window the bedroom closet forms a pocket which collects all the stuffy air of the rooms without any provision to force currents of fresh air into it. An unventilated closet of this sort furnishes a good breeding place for moths, but is far from desirable as a place to store wearing apparel.

#### A Pole for Hangers

A pole at least 5 feet 6 inches from the floor of the closet and 12 inches out from the wall should run across the closet or wardrobe. The hangers for suits and dresses are placed on this pole, which should be about 1¼ inch in diameter. A convenient device now on the market is a hinged pole which may be turned out into the room, giving convenient access to the hangers for placing or removing the clothes.

The manner in which these poles may be used to store large quantities of clothing is shown in the illustration at the bottom of the page. The closet there shown is built around a lavatory, a convenience which is especially desirable in a guest room.

In addition to the provision for hangers, the closet should have a shelf for hats, which may be placed above the pole. A shelf for shoes may also be provided. This should be just wide enough to accommodate one row of footwear.

A number of closets are so small, however, that they lack the necessary space for these conveniences. In this event small window seats may often be built in the bedroom which are large enough to accommodate both hats and shoes and are attractive too.



An Ideal Bedroom Clothes Closet



# Beautiful Handmade Rugs

By HELEN KAUFMAN

WITH the revival of the four poster beds and Colonial furniture came the widespread use of the hand-made rugs to correspond. For the crochet worker rug-making is fascinating. For the experienced needleworker the braided rugs are of interest.

Materials used in all these hand-made rugs are a matter of choice, or rather of availability. The braided rug of discarded woolen garments will wear a lifetime. For this cut your material, after it has been sponged and pressed smooth, into strips two inches wide. These fold best cut lengthwise, braid your material, having two strips of light and one of medium shade for the light portions, two strips of medium and one of dark for the medium border and two strips of dark and one of medium for the dark edge. Braid your strips and wind into balls, as for rag carpet work. Then using a coarse cotton or linen thread, sew your braids together.

## An Oval Braided Rug

FOR the oval rug illustrated, brown was the predominating shade. For this the medium band consisted of tan, golden brown and wood brown. Sew two strips together, each 14 inches long, allow enough fullness in turning the corners. Make four rows of this, changing at the corner, to the light band. For this two strips of gray and one of wood brown were used for two rows, then two strips of champagne and one of tan, formed one row; then cardinal, tan and wood brown, formed one row; then champagne, tan and brown for one row; then repeat the center combination for two rows; then light for three rows and the dark for the remaining edge. For the dark use golden brown in light and dark shades and wood brown. This coloring is merely quoted as an example, these rugs are very effective made in the hit or miss style, with black as the dark color. The rug to harmonize with the room having blue predominating is practical made of three shades of blue and sand color. Greens in light and dark shades with some white, gray and black, are effective and cool looking. In fact, one's individual taste is her best guide in shading these rugs. The place for

which it is intended and the size of that space should govern the size of the rug. The only thing to watch carefully is to see that the sewing neither fulls or skimps, so the rug lays flat when finished.

In the cottons, the braided rugs can be made in very dainty colors. The generous use of white, combined with one color, is charming for summer, in the bedroom or upper hall. Pale gray may be substituted for the white if one lives in a smoky city. To secure the shade desired, one can use all white rags and dye them the necessary shade. The very reliable dyes now procurable make this portion of the work both simple and satisfactory. Then too, one can rest assured that her rug is fast color and will stand numerous washings for these rugs are as effective when washed as when cleaned and will be much cheaper, for they require frequent cleaning.

## The Round Crocheted Rug

FOR the crocheted rugs, a heavy wooden crochet hook and the material will afford pleasant pastime. For the round rug illustrated silk

also on the bias. Knit stockings or underwear of cotton are best for this filling cord, as they roll up naturally. Of the silk, make 5 ch sts, join forming a circle, lay the cord above

ture of light blue, orange, dark green, pink and sand colors, forming the mottled portion of the illustration. Wisteria and navy blue formed the dark border, with white, light gray, black and white checked and dark gray mixed silks form the outer rows. There is no set rule for the number of stitches one increases, only make enough for the work to lay flat. The size is generally determined by the amount of material at hand.

The crocheted cotton rugs are practical and durable. The colors for them are more easily matched than the silks. For it is no great effort for anyone to collect a quantity of white goods and dye the shades desired.

## The Oval Crocheted Rug

FOR the oval crocheted rug, start with 40 ch sts for a rug 44 by 24 inches, as is the model. For a smaller rug decrease the ch sts; for a larger one, increase them.

In crocheting fold the edges under, which prevents any raveling and produces a smoother and more durable rug.

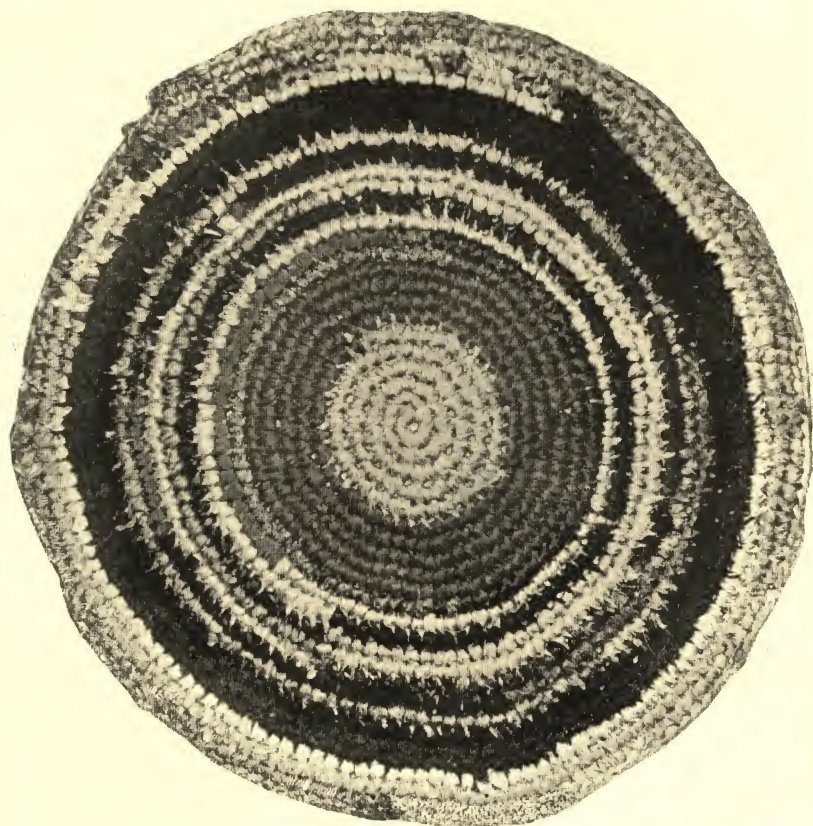
1st row: 1 s c into each st, 3 s c into end st, turning the corner, then make 1 s c into each 1 st of original ch, from the opposite side, 3 s c into end st; of any colored cotton rags make an underlay. This is placed flat over the 1st row and crocheted over it; into the stitches below. This gives the rug additional weight and firmness and assists in making it lay flat; this is continued for the entire rug,

2nd row: 1 s c into each st,

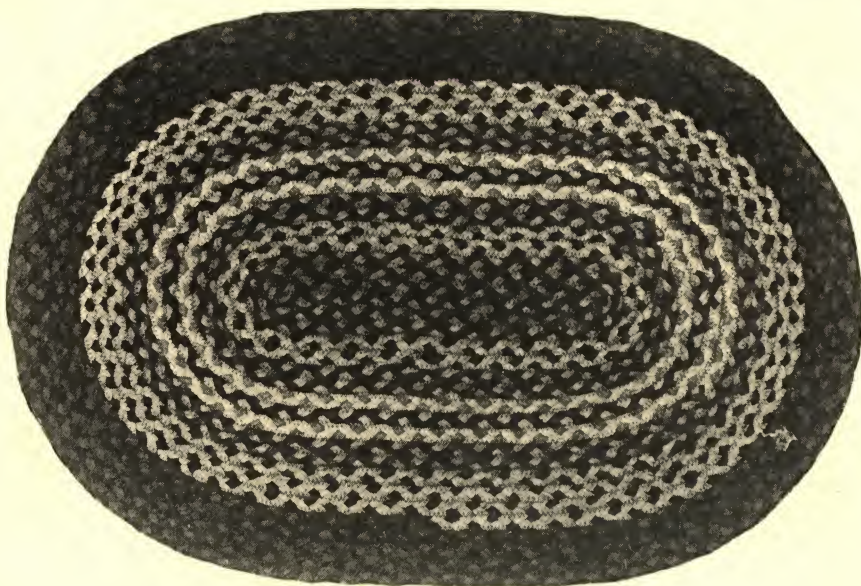
3rd row: 2 s c into each of the 3 corner sts, 1 s c into each of the side sts, increasing by 4 sts, along each side,

4th row: \* 2 s c into first corner st, 1 s c into next st, repeat \*, twice, for each end, 1 s c into each side st.

For the remaining rows one must use her own judgment. On the first ten to twelve rows the work is increased 3 or 4 sts at the ends and occasionally on the sides; as the rug grows larger, the increase lessens and one has to skip 1 st along the side if the rug is getting too full.



The Crocheted Round Rug



The Crocheted Oval Rug

was used, giving a rich and lustrous finish. These strips are cut 1½ inches wide, on the bias, and have a filling cord cut the same width and

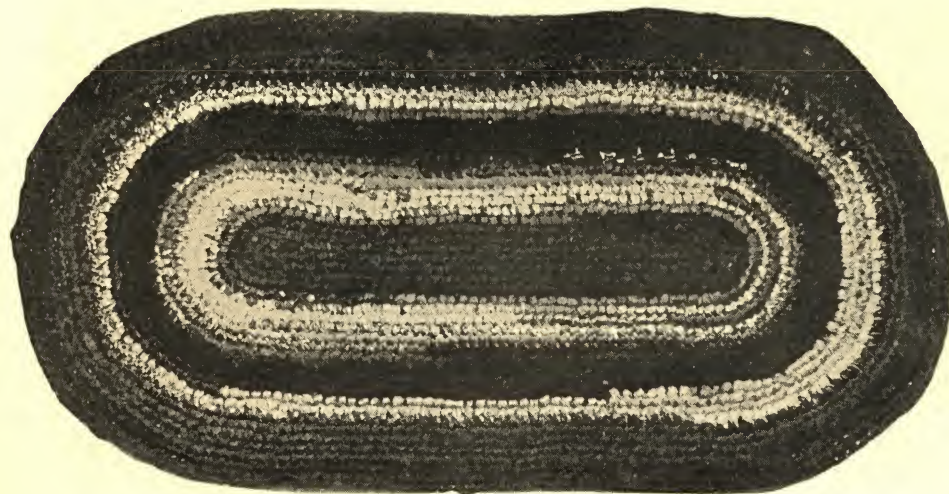
the circle and cover with 7 s c, forming 1st row,

2nd row: 2 s c into each st, having the cord lay over the top of previous row, for all the remaining rows,

3rd row: \* 1 s c into first st, 2 s c into next st, repeat \*,

4th row: 1 s c into each st,

5th row: \* 1 s c into each of first 2 sts, 2 s c into next st, repeat \*, continue increasing as needed to make the work lay flat. The colors are a matter of choice. The light colored center of this rug was of amber brocade satin, forming the first five rows; then navy blue taffeta formed the next five rows; one row of red, black and white checked silk, with a half row of old rose; then the next five rows were a mix-



The Braided Oval Rug









The Modern Sewing Room Is Electrically Equipped



# These Rooms with Painted Walls Show Charm of Color Harmony



**A Dining Room in the Spirit of Old Colony Days**

The wall color, varying from soft blendings of blue and brown, gives a range of blue-grays, gray-greens and browns which seem to find their parent colors in the dark Colonial mahogany and rich green rug.



**A Homey Living Room**

The soft grays, rendered doubly pleasing by the transparent, luminous quality of the glaze effect, give an added richness to the more intense tones of the furnishings of this room.



**A Charming Living Room in Gray and Green**

Bright bits of color have been introduced subtly in the gorgeous Chinese lacquered cabinet and the blue pillows in the chair. The stippled wall robs the room of all possibility of stiff formality.



**A Living Room in Old Ivory, Blue and Mulberry**

The simplicity of the wall treatment permits the attention to drop to the comfortable chairs and the full rich blue of the rug. The floor has been stained dark in tone to hold the scheme together.





1. Windsor Chair. 2. Windsor Rocker. 3. Geo. Bradford Chair. 4. Geo. Bradford Rocker. 5. Fancy Colonial Chair. 6. Fancy Windsor Chair. 7. Youth's Chair. 8. Colonial Rocker. 9. Straight Colonial Chair. 10. Bedroom Chair. 11. Victoria Rocker. 12. Standish Chair. 13. Colonial Dining Chair. 14. "Salem" Rocker. 15. Child's Chair. 16. Dressing Table Chair. 17. Plymouth Rocker.



## Bed Rooms



Painted Furniture Is Popular

spreads and the soft dull blues, mulberry and pale yellow in the upholstery of the easy chair and daybed make up a most charming color plan. The well appointed desk with a chair of the same design as the other furniture, and the bedside table with a shaded reading lamp are necessities in the well furnished owner's room.

The rooms illustrated above at the left and in the center of the page show quite different treatments of the popular painted furniture which has had a recent revival. The charming all-over design of the bird and flower wall paper in the upper picture serves in a most unusual manner to emphasize the white enameled pieces with their single quaint flower motif. The plain floor and the rug which produces the same contrasts of light and dark as the walls, but without figures that demand attention help to keep the furniture the dominating thing in the room. No pictures should be hung in this room and only plain light or dark objects could be placed on dressing table and bureau, since the background itself is a picture. The curtains must be solid, preferably white or cream.

### A Cretonne Room

IN the room shown in the middle of the page, where color in curtains and rugs is to play a conspicuous part, the walls are plain and the

painted furniture, instead of having a flower or fruit design is plain with the single line of color. The color scheme of this room is particularly attractive. The twin beds are painted a soft sage green with black line decoration; the walls are a soft cream with the black line decoration emphasizing the panels, and the cretonne curtains have the same creamy background as the walls with figures in black and rose. The dressing table, bedside table and reed straight chair are all painted sage green like the beds. The one large easy chair is the only piece that repeats the cretonne of the draperies except the painted panels of the door, where the exact color and simplified motif are effectively reproduced.

The danger in using cretonnes, chintzes and stencils, from an artistic standpoint, is in excess. If the coverlids of the beds in the room pictured or the cushion of the reed chair repeated the cretonne then the whole effect would be destroyed. The rose of the cretonne and the cream of the walls find emphasis in the rolls and spreads, while the black line of the paneled walls and of the furniture is repeated in the squares of the coverlid border and in the border of the gray and deep green rugs. No more suitable bedside chair could be found to harmonize with the room than the black painted, rush-bottomed one by the



Mahogany Is Always Good

bedside. The old blue of the pillow adds an interesting note of color.

Often in the small or two-room apartment the boudoir must serve as sitting room by day, and the problem is to make the room decorative and livable with no sign of the uses to which it is converted at night. Since painted furniture is attractive for both living and bedroom, pieces can be chosen, perhaps apple green with rose and black decorations, which will fit a sitting room better than the usual white enamel. Then the conventional twin bed should be made into daybeds, and placed, instead of side by side, over against the wall.

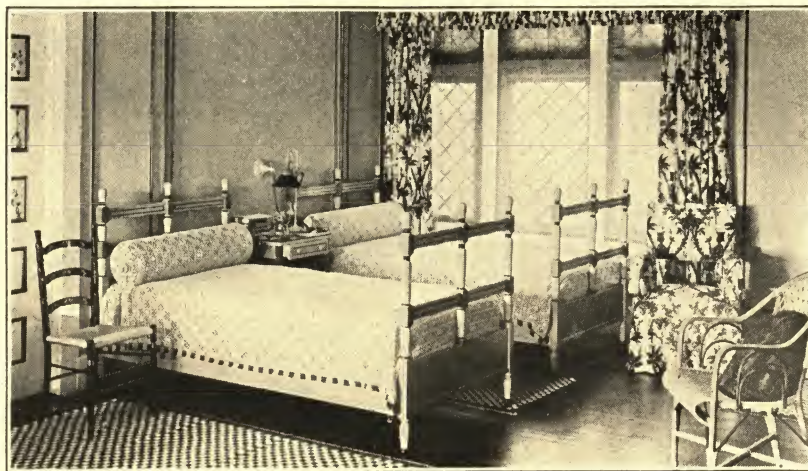
The most satisfactory dressing table for this purpose is a long low one, with a central drawer long enough to hold the glass tray for comb, brush and toilet articles which cannot be placed on top during the day. It should also have convenient drawers on either side which serve also as a bureau.

### The Two-Purpose Room

THE mirror above the dressing table may well be a living room mirror, which serves the purposes of hairdressing at night and all other possible needs. Paired lamps with decorative shades and a low bowl of Venetian glass for flowers are both useful and beautiful objects for the table. At the end of one daybed an attractive paneled chest, painted in the same colors as the other furnishings of the room, will provide a top shelf space for the placing of decorative ornaments. Inside this can be fitted convenient tray shelves, which are just the place for shirts, ties and flatly folded underwear.

Window seats and flat cedar chests which are rolled under each bed can hold additional clothing and linens. A small gate leg or drop leaf table by each bed may serve as a reading stand by day and the regular utility bedside table at night. Upholstered wicker chairs, small, straight painted chairs and one or two Windsor rockers with rush bottoms will help complete the furnishings of dual character for the room.

When economy is necessary it may become imperative to make the best of things which seem ugly and inartistic. If your brass bed must be used even though you dislike it, you can paint it the colors of your walls, a soft pearl gray or cream. Then use color in the bedspread; sunproof material in a solid color with a narrow fringe in several colors, which are repeated in a square or circle for the top will make an attractive cover, as does chintz or cretonne. Ugly gas or electric fixtures can be painted to match the



A Very Modern and Beautiful Treatment



A Room for Day as Well as Night

IN order to fulfill adequately its real purpose a bedroom must be first of all comfortable, but at the same time decorative and livable, because the bedrooms of today are used not only for resting purposes at night but serve the needs of the day as well. Particularly in the small apartment all the furnishings and appointments of the bedroom must be arranged so that it will look and serve as boudoir or sitting room.

The bedroom offers greater possibilities for bright cheerful schemes in decorating than any other room in the house with the exception of the sun parlor. Bright chintzes, beautiful and rich fabrics, light painted furniture and all the things that bring sunshine into the room are in keeping.

The personal note which must be kept out of the more formal rooms of the house; the intimate pictures and photographs; souvenirs and curios that have only personal interest; the work tables or baskets for the mistress of the house may claim a rightful place in your own room, but it is desirable that they are made to harmonize with the main color scheme of the room. If it is the intention to hang pictures or display colorful objects of art then plain walls must necessarily be chosen. The work table, bag or basket should represent one or two of the colors of the room.

### The Owner's Room

FOR the so-called "master" or owner's room, single four-poster Colonial beds made of polished mahogany in a setting distinctly Colonial in feeling, is one of the most practical and delightfully artistic treatments. The walls may be a soft cream yellow and the woodwork painted almost the same color with just a tone darker mixed with the paint to distinguish the woodwork from the walls. Cretonne curtains in blue black and a vivid pink on a creamy background, lined with unbleached muslin will harmonize well with the wall tones. The floor covering should be round rag rugs in a medium blue, with the other colors of the room interwoven in just the right proportion to make an interesting pattern.

Pictured at the bottom of the page is a delightful example of a modern bedroom which combines beautiful lines and exquisite coloring with every development and appointment for genuine comfort and convenience. The lovely brown of the walnut cane paneled furniture is enhanced by the plain floor covering of rich mulberry brown. The sage green of the taffeta curtains and





Simple as Childhood Itself

walls, and colored silk shades will then give a decorative value to them. If you wish to use twin beds and lack sufficient wall space, have the footboard removed from one, draw it out into the room in a position convenient to the light and treat it like a couch or daybed. If it is covered in figured or striped material of different colors then use cushions of plain materials, but if the covering is of plain material enliven it and give it more decorative value by using cushions of several colors.

Let the location of the room influence the decision regarding colors. The bedroom with a sunny exposure may have any color, either warm or cold, but a north room or one more or less shaded requires the warm sun producing colors, yellows, apple greens, pinks. Blues, violets, grays or mauves should not be used unless in predominating warm tones.

When an attic is to be reclaimed as a bedroom, the problem with dormer windows and slanting ceilings is how to get sufficient wall space. If the sides of the dormer recess are fitted with a mirror glass edged with narrow moulding and the dressing table is placed underneath the dormer windows, one of the problems will be solved. Here also the bed should be treated as a daybed and drawn out into the room where light and air are available. A mirror placed so that it will give back the picture of tree or green leaves outside the attic window, and walls papered in one of the old-fashioned wall papers that depicts nature scenes showing vistas will seem to extend the walls.

The bedrooms for boys and girls are usually smaller than the one set apart for the owner and mistress of the house and yet the normal boy or girl has to have a place for more personal belongings, many of which are better put away on safe and invisible shelves, like the ornaments bequeathed to us by the bad taste of our ancestors. The first necessity then for any boy's or girl's room is ample space, under cover, in which to put belongings. Beside the ordinary closet, the adjunct of nearly every bedroom, there should, if possible, be a series of built-in shelves recessed in the wall. These shelves, when the room is occupied by rather young children, should be low enough for them to reach, and curtained rather than fitted with doors. Window seats, hinged and with

softly padded coverings that make a comfortable place to lounge and read where the light is good, and with large spaces below to hold what the boy would call his "junk" will help to keep the room free for a harmonious color scheme to be worked out. When the coverlids are balanced and the footboard of the beds is low, as in the girl's room shown above, a low flat cedar chest that rolls under the bed will also prove a successful place for storage, and will be dear to the hearts of the



A Charming, Economical Style

shown in the center of the page. Against the background of plain pale yellow walls and the lovely gentian blue of the rug the ivory pieces decorated in old blue, taupe and mulberry are exquisite. The upholstery of the quaint ivory chair and stool in mulberry with pale yellow stripes emphasizes two of the colors found in walls and furniture. The figures on the dresser are the same tone of gentian blue as the rug, and the shades of the dressing table lamps are a deeper shade of

On the walls are old prints framed in black glass with gold lines and a narrow gilded moulding. The floor is dark polished wood.

For the boy's room all the coverings, including the bedspread, should be of a durable quality and decided colors, not too light, so that he and his friends and all his Scout and football belongings can find a place in it any hour in the day. Mission furniture in one of the dark stains woodwork is suitable for this room. The floor coverings may be a bright

Navajo blanket rug with scarlet background and black and white design in a neutral tone of gray, or with the walls a slightly deeper tint and decorated with a scarlet stencil in conventional design, the color scheme will be effective and one that the boy will like. If there is small window space the gray of the walls and the scarlet of the stencil can well be repeated in the curtains. If there are a number of windows or one large group, hangings in pale lemon or dull blue would be preferable.

Boys usually like the woody colors, such as browns and greens. An attractive room in these tones can be made with the conventional bedroom furniture in walnut, with open bookcases and floor all stained dark walnut. The walls may be covered with a soft gray-green

Japanese grass paper. Hangings in reseda green with brilliant yellow stripes will complete a pleasing and practical room. The rug that would harmonize best would be an old Chinese saddle rug with its soft yellows, greens and cream. The bed coverings are in tan with dark brown border, as well as the couch or lounging seat. Such a seat is indispensable in the room of a boy in his teens, who loves to sprawl and read for hours together. It should be placed in the best possible light.

If the room is large enough to admit it, a fair sized substantial table should be added to the boy's or girl's room. Such a table is necessary in many of their activities. Here they can study or work, play games or read and a drop leaf table painted or stained to suit the other furnishings is the best type. It can be made large or small as required. A note of color can be added to the room in the useful wastepaper basket. Fragile and delicate ornaments are wholly out of place in a boy's room, as in a man's, but artistic things in durable shades and shapes



Any Girl Would Be Pleased with This

occupants since it will seldom have to pass inspection.

The pink or blue beribboned and frilled room which used to be considered technically correct for the girl's and sometimes even for the boy's room, is no longer tolerated. Neither is highly polished furniture, which is neither appropriate or youthful. How much more in harmony with the other things that go to make up a youngster's room and in keeping with his activities are the lovely painted or reed pieces of furniture. They are also more practical, as they are much more impervious to both scratches and dust.

A delight to the heart of any girl is the charming painted furniture of simple and graceful design in the room

yellow than the walls. Sheer plain white dotted Swiss curtains with ruffles draped back at the sill complete the color scheme of the room.

A very small room with modern painted furniture, so simple in line and decoration that it would be appropriate for either a young man or for a young woman, or could also serve as the wee guest room in a flat, is worked out as follows:

The walls have a cool receding gray background lined with a broad mulberry stripe and a narrow green line. The furniture, consisting of single bed, chair, small bedside table and dressing table, is pale pistache green, with mulberry lines, the bed cover is mulberry, the lamp shade is green with mulberry and gray fringe.



Ideal for Games



## The Children's Place



For Mother and Child



For Teas and Toys



Everything in Its Place

he should have.

In considering the room for the small boy or girl under ten years, the first essential is to have all of the furnishings the right height. If several children of different ages are to occupy the same room, certain chairs, table space and mirror should be made available for the youngest as well as the oldest. In the illustration at the bottom of page 26 the massive and somber furniture is wholly unfitted for a child's room. He would be able neither to sit or stand at the table with comfort and books or toys in the cupboard space would, for the most part, be out of his reach. A room of this kind with its plain walls, painted woodwork and large floor space could be made into an ideal room for children with very little expense. Provide one or two plain wood kitchen tables, painted or stained the desired color and the legs shortened so that the child who is to use them can sit comfortably with feet touching the floor. Next have the carpenter make four or five wooden stools from 9 to 12 inches in height, 15 inches long and 12 inches wide, and treat with paint or stain the same as the table. A decorative touch may be added by stenciling animal or fairyland conventionalized figures on both table and stools. The three bottom shelves of the recessed cupboard may be left as a place for the children's own books and toys, for there he can reach out and back at will. The shelving from the upper space should be removed and potted plants or a box filled with growing things placed in it.

### For Very Young Children

**T**HE wall spaces leading into the recessed window should have narrow shelves built in up to a height of three feet, where other playthings and materials can be stored. In the space underneath the recessed window on the opposite side an indoor sand box can be built in with shelves on either side for the numerous tins, spoons, shovels and other utensils needed for the activities carried on in the sand.

Provision of both the sleeping quarters and play space for the younger children of the family is a problem in itself, requiring a careful study of the individual needs of each child. It is usually found advisable to have the very young children sleep close to the mother's bedroom.

In the illustration above at the left the canopied baby bed of white enamel reed with delicately soft padding and spotless frills is placed conveniently near the mother's bed, with

the utility bedside table between, where it will serve the needs of both. The bureau type of chiffonier with its spacious drawers and the compartment of the right height for the baby's clothes, which are placed on little hangers, will be found the most practical to use in the nursery chamber. The clothes hanger for the outside wraps is another prac-

operations performed in attending the baby can be accomplished easily, in the least tiresome way for both mother and baby.

When the nursery chamber becomes the playroom as well as the sleeping room, one corner of it may be successfully treated as in the middle illustration above, with child size reproduction of the bow back



A Paradise for the Little Ones

tical convenience, and the reed clothes hamper, matching the little bed in material and decoration, is a necessary addition. The high folding screen to shield the baby from draught or too much direct light should have a place in every baby's sleeping room.

A more convenient place for the dressing and undressing of the baby than the mother's bed is an ordinary sewing table covered with a thick pad and rubberized sheeting. This can be enameled white and decorated to match the bed. A table of this kind is just the right height for the mother to sit at comfortably, and a plain straight chair without arms should be provided with it so that all the

Windsor chairs, enameled in ivory, and a plain round table to match. The low gayly padded seat is just the coziest place in the world for fairy tales, while the window ledge above provides a safe and alluring place for the whole procession of nursery animals. The play room

pictured in the middle of the page shows how even the four plain walls may become an enchanting land of rhyme and story. The open shelf casing, which fits in so delightfully with the other wall treatment is a "place for everything" the child needs to use, and because it is low and open will give him incentive to "put everything in its place."

For the children's sleeping room painted furniture or wicker



A Closet for Toys

seems the most appropriate, and many interesting and attractive pieces can be found which are durable in construction and pleasing in simplicity of line. Miniature Windsor chairs with arms and painted rush-bottomed rockers are both sturdy and comfortable. Children love block colors and sunshine; these are the keys to the color scheme of their room. The chintzes and cretonnes with all-over patterns so popular with adults never appeal to them, no matter how gay and bright, as much as plain colors with distinct figures, or conventional block designs painted or stenciled on.

Fairy tale friezes in bright colors against a wall background of neutral buff is a pleasing adornment. But since the child will grow up and pass from Mother Goose to Alice, from Alice to the Liliputians and so on out of one set of story pictures into another the most practical and perhaps on the whole the most attractive wall treatment for the room is the provision of a dado about three and a half feet from the floor inclosed by mouldings above and below. In this dado one can hang framed pictures, which can be changed from time to time as the child's interest develops. Sometimes the dado on one side of the room will be hung with Mother Goose pictures, while on the opposing wall will be pictures of dogs or sheep, reproductions from paintings of the world's best artists. When the Christmas season comes, pictures of Madonna and Child, of the Shepherds and wise men will take the place perhaps of the Mother Goose pictures, and when the child's interest is all in boats and ships the dado can be filled with every kind of ship that sails.

### The Little One's Playroom

**W**HENEVER possible the child should have a playroom separate from the night sleeping room. It should be a room where he will have to be bothered very little with don'ts from the grown-ups, and where he feels a sense of freedom and possession. Everything in such a playroom must be his size, within his reach and adapted to his activities. From the time a child can creep until he is too old to play he feels the necessity to dramatize, and just so surely as he has a room in which he feels unhampered by restraints and observation he will use not only the toys and materials which grown-ups suppose to be adequate but every piece of furniture in the room. Tables will get turned upside down and become boats; chairs become converted into trains; fireside benches or set-





Using an Odd Nook

tees will serve as the body of an aeroplane with the fire screens as wings. Even the cupboard gets itself topsy turvy in the struggle to become a well stocked grocery store.

In view of what the child considers a livable room for himself it

room cannot seem the right place for them to be if they have to miss the calls of milkman, laundryman, iceman and groceryman, because they have to learn how each in turn transacts business in order that they may do likewise.

Second, if possible there should be an outside entrance which will lead directly to their outside playground. This is important for the older members of the family as it saves them a good deal of confusion and interruption and for the child as it saves him from much needless interference and delay. The tremendous schemes in his little head are soon forgotten if they cannot be carried out with dispatch.

Third, unless the room has a south exposure, where it is flooded with sunshine, a fireplace and warm yellow walls should bring sunshine into it, because the impressions gained in this room are bound to exert a lasting influence upon the tastes, appreciations and character of the mature person, and neither coldness nor gloominess will bear assimilation.

A charming and livable play room was made from a room having a north exposure by painting the ceiling a deep cream and the walls above the dado a straw color. The

with reference to this need will also do much to make the work of keeping house less difficult.

With sufficient storage closets it will not be necessary to clutter up bedroom closets with piles of winter clothing stored for the summer or with summer clothing in the winter. Neither will it be necessary to resort to trunks, with the difficulty which they present of keeping clothes aired and free from the danger of moths. Well ventilated linen and storage closets, equipped with the necessary rods for clothing hangers, and well provided with shelves will help to keep clothing and linen ready for use whenever they are needed and yet keep the wardrobe and closets in the bedrooms clear for every-day use.

There are few houses that do not have some unused space that by careful planning can be utilized for a storage or linen closet. Where a bungalow has a dormer window in the roof this furnishes an ideal place for storage. Shelves may be placed under the slope of the roof, and hanger rods may be run the length of the dormer window, making a pleasant and well ventilated place for storing articles not in frequent use. A well equipped attic storage closet is shown in the illustration at



In a Dressing Room

sloping roofs that can be used for storage closets. The use of space of this sort, which would not be available for any other purpose, is shown in the illustration above at the left. Here a series of drawers have been built into the side of a dormer window. When closed they are flush with the wall of the dormer and the cabinet in which they are placed extends back under the roof. The roof slope makes it necessary to have comparatively narrow drawers at the top and larger, heavier drawers at the bottom, making a convenient variety of space for the storage of large and small articles.

If the space for sleeping quarters will permit it, a desirable arrangement, especially for a guest room, is to have a dressing room opening from a bedroom. Wardrobes and closet space can be provided in the dressing room. Such an arrangement is pictured above at the right. The dressing room has a built-in wardrobe with long mirrors on the doors. It is also equipped with a lavatory.

In many houses the room arrangement will require a built-in wardrobe in place of a closet. An excellent type of such a wardrobe is shown in the illustration near the middle of the left hand column. So much space as this for storing is indeed a luxury.



A Built-In Wardrobe

seems as if the wisest planning will provide for the plainest and most durable furniture that can be made; tables, chairs, stools and benches that will serve him well for his varied activities and which can be repainted and redecorated every season of the year if necessary.

The traditional children's room, spotless and in order, should be the sleeping room which we can show with pride to our friends; but the playroom must be the kind that looks just as well up side down as right side up.

In the location of the play room just described there are three essential things to be considered. First, the nearness to the kitchen, if the mother is without servants, or nearness to the room where most of the mother's activities are carried on. Small children will never play away from the activities of the family, because their main occupation is the dramatizing of what the adult members of the family are doing. Their

used in its construction are a dull lemon shade. The floor is covered with a plain gray-green linoleum and the curtains at the two groups of windows for the recessed cupboard are plain reseda green with stencilled animal figures and fringes in mulberry.

The furniture, consisting of a long low table, with stools and a fire side bench to match were painted a reseda green with yellow lines. Two wicker chairs and a low rocking chair of reed were upholstered in bright cretonnes and the seats over the radiators beneath each group of windows were piled with cushions having washable covers in gay block colors.

#### The Question of Closets.

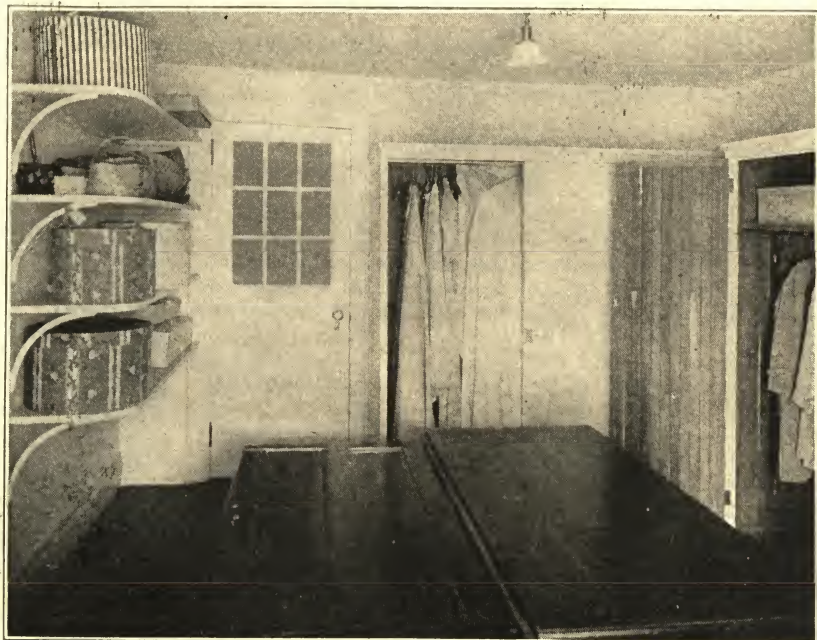
ADEQUATE storage space for bedding, household linen and the clothing not in constant use are needed to make a house truly livable. Forethought in planning a house



Sliding Shelves for Bed Clothes

the bottom of the page. Another closet which makes use of an attic dormer window is shown on page 19. In the latter the walls are lined with cedar, making it easier to keep clean and free from moths.

Houses of the story and a half type have many nooks under the



Plenty of Storage Room Is a Luxury



# Bathrooms

NO room in the house requires such careful planning as the bathroom. If it is well equipped and successfully arranged it will go far toward giving the house the character of a comfortable home. On the other hand, there is no room where any defect stands out more glaringly. There is none in which any fault in planning is likely to cause more work and anxiety on the part of the housekeeper responsible for keeping it in presentable condition.

The ideal bathroom is one entirely devoid of cracks or crevices in which dirt can lodge. Much work is saved by having rounded joints between the floor and walls and between the bases of fixtures and the floor. Bathtubs with straight sides and ends which fit snugly against the wall and the floor are to be preferred. Tubs with an outside rim that makes a space between them and the wall and with legs raising them above the floor leave spaces underneath and behind them that are difficult to keep clean. If the expense of providing the straight sided tub is considered too great, a base fitting to the floor can be secured instead of legs at slight additional expense.

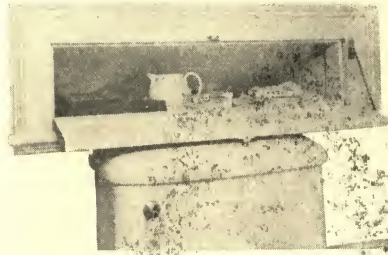
## Good Flooring Essential

FLOORING which is as nearly water-proof as possible should be used. The type which is the most serviceable and sanitary, but also the most expensive, is a composition of ground cork pressed into tile like pieces. These are furnished in different colors and are laid in patterns, giving much the appearance of a linoleum covering. Composition flooring of this material is impervious to moisture and at the same time has a softer and more yielding surface than other water-proof flooring.

Tile floors have given good service in a majority of the best appointed bathrooms. They can be kept absolutely clean by frequent scouring. If wood flooring is used it should be heavily varnished so as to present a polished surface, which will not absorb water. Bath mats,

and washable rugs should be used as floor coverings, here again ease of cleaning being a main consideration.

Careful provision for the linen used in the bathroom should be made, either in the room itself or



A Useful Storage Place

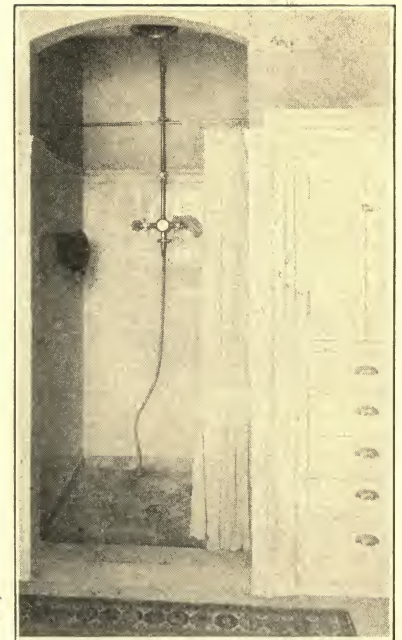
nearby. In many well planned houses a linen closet is provided

in connection with it. Attachments including a metal ring from which a curtain can be hung may be secured and easily attached to the bathtub. A good type of this shower bath attachment is shown in the illustration at the bottom of the page. This also shows a convenient type of foot bath, which can also be used as a baby bath.

If a shower bath separate from the tub can be afforded an alcove such as that illustrated at the top of the page furnishes an excellent location for it. Spray and steam from the shower are kept out of the main part of the room by this means.

A large mirror over the lavatory is to be classed among the essentials for a well appointed bathroom. The ideal placing for this is between two windows so that it gets light from both sides. Electric light fixtures, in addition to the light for the main room, should also be placed on each side of the mirror so that an intense light can be directed on it if desired.

If there are no pairs of windows



The Shower Always Invites

of the pipes in the cellar. These may be opened from time to time for cleaning. If pipes enter an outside wall they should be wrapped to prevent freezing in sections where zero temperatures are encountered.

## Heating Is Important

HEATING of the bathroom is an important consideration. Provision should be made for bringing it to a temperature from 5 to 10 degrees warmer than the rest of the house. If a heating plant using radiators is used sufficient radiation should be planned to bring the room to a temperature of 75 degrees in cold weather. A portable oil, gas or electric heater for chilly mornings or evenings in seasons when the main heating plant is not in use will add much to comfort.

Many people make the mistake of failing to keep their bathrooms warm enough. It is indeed very uncomfortable in the winter to bathe in a room which is so cold that one fails to derive enjoyment from the morning plunge. On the other hand when the rest of the house has perhaps gotten cold, it is a great comfort to have one room at least, where one can be more than reasonably comfortable.



A Built-In Bathtub and Pedestal Lavatory

close to the bathroom door. In others a built-in towel rack is placed in the bathroom itself. In most rooms windows are high and there is little space under them for a built-in closet.

The top of the closet furnishing a shelf for toilet accessories, a shaving mirror and the like. The housekeeper may be saved many steps by a laundry chute from the bathroom to a receiving box in the basement laundry below.

Where it is possible to do so in the bathroom, it is an advantage to place the bathtub in an alcove, enclosing both ends. This makes possible a roomy shower bath by placing a rod between the two walls of the alcove, with a rubber or canvas curtain supported on it by sliding rings.

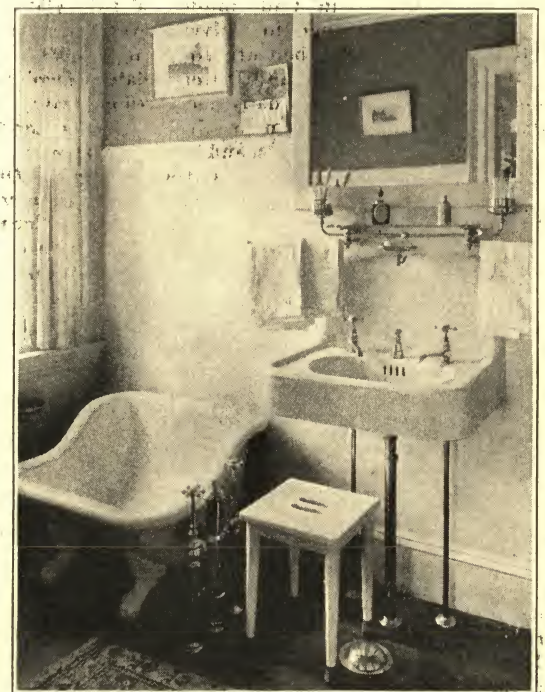
Such an alcove for the bathtub is not essential for the enjoyment of a shower bath

in the bathroom the lavatory and mirror may be placed so that the light from the window comes from the side, preferably the left, as in the two bathrooms shown at the bottom of the page. Both these illustrations show the use of glass shelves over the lavatory to provide a convenient place for toilet accessories. Wide assortments of shelves and towel racks which add much to the convenience and neatness of the room are to be had.

While it is desirable to have water and waste pipes concealed in the walls where possible, provision must be made for access to them in case they leak or become clogged. In some cases a narrow closet may be provided adjoining the bathroom to contain the pipes. It is the usual practice to provide traps at the base



A Shower Over the Tub



A Space Saving Arrangement





A Cheerful Room Invitingly Furnished

## The Dining Room

SINCE the small house and apartment have become the rule instead of the exception, many of the dining rooms in our modern country or suburban homes and in our larger cities are of such limited proportions that the task of finding suitable furnishings has become a difficult problem. The old conventional and ponderous ten-piece dining room suite is wholly unsuited to its newer and smaller quarters and is especially out of place when the dining room is combined with the living room, as is often the plan now.

Fortunately many of the manufacturers are placing on the market good and far more attractive designs in dining room furniture, intended to be used in small rooms, and housewives are gradually seeing the wisdom of furnishing with the more interesting odd pieces—the gate-leg or drop-leaf tables, and rush-seated Windsor or ladder-back chairs, and in place of the bulky buffet or sideboard the more graceful console, which can be used both as sideboard and serving table. The built-in china closet of beautiful and simple design, with the drawer for silver and the cupboard space beneath for the linen, serving trays and other dining room accessories in daily use, solves the sideboard problem in the best way for the small house and is in perfect harmony with the room itself, forming a decorative addition of real architectural value.

It is not always easy for the inexperienced house furnisher to choose among all the various designs and periods of dining room furniture just that group of pieces which will fit into his own home and be in harmony with the rest of the furnishings and with the atmosphere of his particular place. It is comparatively easy, however, to learn to distinguish between the furniture that is well designed and that which is poorly made; to know something of the period styles and be able to tell the difference between Chippendale, Sheraton, Jacobean and Heppelwhite furniture.

It is best always to try to imagine the various pieces as they would appear in the dining room in which

they are to be placed; if the house is distinctly Colonial in feeling we would naturally choose Colonial furniture or designs interpreted in mahogany, such as Queen Anne, Chippendale or Adam. Some of the antique or modern painted pieces could be used if the simpler and less ornate designs are chosen. The choice of mahogany chairs modeled upon the Sheraton design, with the straight lines generally employed in this style and the typical arm support gracefully extended was a happy one to fit in with the gate-leg table of the same wood and the mahogany bureau desk.

### Appropriate Chairs

THE chairs at the left and in the middle of the group shown on this page are appropriate and beautiful designs to be used with any type of gate-leg table or the plainer makes of refectory tables now in vogue for the combination dining and living room. There are a number of variations of the Chippendale design, such as the one illustrated at the right of the group shown here, which are appropriate for small dining rooms in Colonial or Chippendale furnishings. These have cushioned seats that may be covered in leather, tapestry or denim in a color to harmonize with the chosen color scheme. Arm chairs to match may also be purchased.

It is possible always to obtain both chairs and tables that are honest and strong in construction, but which are neither clumsy nor ugly in shape. Decoration should follow to fit the structural shape, and gentle curves soften the lines of construction without weakening the article. Pieces of furniture made in past ages that have stood the test of time and changing conditions have an unquestioned value today, but there is a serious problem as to how their reproductions may be used in modern times.

The wisdom of strict adherence to period furniture for general use in the dining room, or elsewhere in the house, is questionable because its cost is usually out of all proportion to the result obtained. There are

many beautiful and artistic but much less expensive pieces that are perhaps more in keeping with modern use. One satisfactory method is that of combining periods under



Mahogany and White Enamel

close decorative influence. Thus in one dining room with an Adam mantel and gate-leg table, the chairs



Chairs That Bid One Welcome

were Heppelwhite with a Sheraton arm chair and desk. In another dining room the furniture is not a full suite, but odd pieces all of Italian design.

If there is one room in the house where a feeling of gaiety and hospitality should abound it is the dining room. Too often dark and somber conventional furniture, together with clumsy plate rails and bold and striking wall paper designs have made of this room a deplorably ugly and gloomy place.

### A Console Is Decorative

THE dining room should not serve, as it so often does, as a show room for cut glass, china, curios and souvenirs. This is one of the reasons why the console or the pair of consoles, when space permits, and a quaint old lowboy to hold the linen have a better place in the decorative plan of the dining room than the buffet or sideboard. The objects placed on the console should be few in number, and the temptation to overcrowd it is less than it would be with the more spacious and clumsy sideboard.

Whatever is hung above the console should be carefully selected with respect to shape and proportion. If a mirror is chosen it must be hung vertically instead of horizontally. If the console is a long and narrow one, a decorative grouping of objects that will be found attractive would be a pair of candlesticks, with very tall candles on either end, a silver cup or dish of fruit in the center, and on the wall above a glass framed mirror of correct proportions. To make the grouping still more symmetrical simple side brackets for the lights may be placed on each side of the mirror.

However, much we try to avoid pairs in all the other rooms of the house, the dining room is one place where paired chairs, consoles or mirrors give a feeling of satisfaction and a note of balance and dignity that is needed. Not only does the paired arrangement of consoles serve admirably as a decorative grouping, but it provides the additional space needed for serving without encroaching to any degree upon the floor space. A well balanced grouping is formed with a Queen Anne serving table, rush-bottomed fiddle back chairs on either side and on the wall above a mirror with a carved broken pediment. The only objects on the serving table to complete the balanced effect are two well proportioned candelabra.

A painted console, with painted chairs to match on either side, may be appropriately combined with a flower painting to form an attractive group and besides being simple and in good taste is very decorative.

In a house where the woodwork of the dining room is stained brown a set of furniture of brown stained





The Handy Tea Cart

oak following the Jacobean design would be charming. Cane panels introduced in the sideboard and chairs will give marked individuality to the various pieces. Rough walls and printed linen or cretonne for the hangings would be a suitable background for this set.

#### To Add Cheer and Color

WHERE the dining room happens to be gloomy, with insufficient light and an uninviting outlook, much can be done to add cheer and color by the use of painted furniture and brilliant draperies against light tinted walls. One effective method of furnishing such a room would be by the use of blue green painted furniture that can be found in simple designs, with a drop-leaf table and bow-back Windsor type of chair. The walls should be cream and the draperies blue green, with red and orange figures. Add a table runner of plain dull blue with gay ends of applied figures like the drapes, and the warmth of growing plants and ferns, and the gloom is sure to vanish.

For a small apartment or country

chosen. A plain white paneled wall makes an excellent background. Walls papered in cream oatmeal paper, with curtains of some gay pattern of printed linen or English chintz, are also in keeping. A plain or block pattern rug would be effective.

In a dining room which is to be in daily use by a family with growing boys and girls, where the highly polished furniture is bound to suffer innumerable scratches or the children to suffer unendurable restraint, the wisest and happiest choice of chair is the most durable and closely woven reed that can be purchased. These

chairs look particularly well with the drop-leaf or gate-leg tables, and can be stained or painted to suit the other furnishings of the dining room. When the tea cart or fernery are of the same reed construction as the chairs the effect is more pleasing.

If the kitchen is small, as it usually is in the modern house or apartment, and the office work of the housekeeper must take place in some other room, one corner of the dining room will have the advantage of being near the place where tradesmen are to be paid and where bills are received. A desk such as that shown on the next page is an ornament to any room. A desk in the same general period and design as the console or buffet should be chosen. When dining room and living room are combined, the end devoted to the dining room may well have the desk and books surrounding the long refectory table, which will then serve as a library or dining table as needed.

A dining room buffet or console demands the same dignity and simplicity of treatment required for the mantel shelf. Crowding with useless ornaments or with too many

included in the grouping. The two candlesticks placed on the console with a mirror in a narrow frame above would contribute more of decorative value than the grouping illustrated. Here, as in every case, appropriateness dictates the variety of articles. The rule that there shall be no over-crowding or disorder in the placing of articles should be followed.

The built-in buffet has many advantages, and can become a more decorative feature of the room than one of ordinary manufacture if in the designing of it the architectural effect of the room as a whole is taken into consideration. The same wood treated with the same stain or enamel used for the trim of the room should be used for the buffet so that it will seem to fit into the wall or paneling as an integral part. With such a built-in buffet the arrangement of drawers and compartments can be made to suit individual needs and taste, which is another desirable feature.

In the dining room as well as in the kitchen and bedrooms the problem of storage has to be faced, especially when a large family has to be considered. Built-in china and linen closets will not only consume less space than a cabinet of movable type, but will be in better taste. If the partitions are thick enough to permit, a closet to take care of the supply of flat silver and the bulkier cake baskets, platters, covered dishes, etc., may be recessed in the side wall of the room nearest the pantry or kitchen as the case may be. If this arrangement is impossible, a corner cupboard or a pair of corner cupboards may be built, thus giving ample space and a balanced effect to the room.

#### Service Wagon Helpful

THE upper portion of these cupboards may have a glass door, small leaded panes being very attractive, and a solid door below giving access to a series of drawers and shelves. If the dining room is too small to accommodate a cupboard of this kind, provision should be made for storage in kitchen or pantry, where they are easily accessible.

A service wagon or tea cart as shown on this page is one of the pleasing and practical conveniences necessary to the dining room, and it helps to impart an air of informality and gaiety to the afternoon party and is almost indispensable if one is in the habit of serving afternoon tea. The one illustrated is a mahogany tea cart of good design and is arranged with a removable tray with a glass bottom. The wooden wheels have rubber tires, which is an advantage, especially if

it is to be used on hardwood floors.

It is almost as important to save steps in the work of serving and taking care of dishes, silver and other equipment in the dining room as it is to save steps in the kitchen. Needless trips across the room from dining table to kitchen sink and back again to storage cupboards on the table must be curtailed by arranging the serving table and cabinets for china and silver nearest to the pantry or kitchen door and by using large serving trays for carrying back and forth both clean and soiled dishes. Better still is a service wagon on wheels for the setting and clearing of the table.

#### Simple Decoration Best

IN the decoration of the dining room table anything inappropriate to the scale of service and the particular meal to be served should be avoided. Too many flowers should not be used and only those in harmony with the rest of the setting in variety and color should find a place on the table. In decorating things can be classified according to color and line and the purpose for which they are intended. Therefore the dining room table, which is to eat at, should hold primarily only those things which are required for the serving of a meal.

The decoration of flowers or fruit as well as the bowl or dish which holds them must be in keeping with the linen or lace, glass or silver used at the same meal. The real decoration must be the silver, glass and china, with its background of linen or lace, and the central feature must be in a receptacle decorative in the same sense as the rest of the table. Flowers should be kept in the same key as the dining place. Modest garden flowers are more in keeping with the small apartment or bungalow, while tall vases of American Beauty roses or great bowls of orchids or gardenias are for more stately and formal rooms.

There are as many kinds of tables as there are dining rooms, and the treatment for each will necessarily depend upon the construction, shape and kind of wood used. To cover the long squarely built refectory table of Jacobean or Italian design with damask cloth, however fine, would be a mistake. When this style of table is used the wood instead of a cloth becomes the background, and old Italian lace runners or doilies are much more appropriate. The usual sort of round or square extension table may be laid with a fine linen and set with conventional china, glass and silver, which can be as rare in quality and design as the room and the mode of living will permit.



A Properly Furnished Table

dining room the Sheraton style of furniture is especially suitable. The simple gracefulness of its lines will add dignity to any room in which it is used, and the pieces will not be large or massive enough to dominate the room. Sheraton furniture calls for light colored walls and white woodwork and will lend itself admirably to almost any color scheme

pieces, as in the illustration shown on the next page, detracts from the decorative effect. There we have a small console, simple and graceful in line, against a plain background of white paneled walls. It is in perfect harmony with the plain table, but it gives the effect of being over-crowded because both the clock and the lighting fixture above are in-



A Service Using Doilies



With the more informal gate-leg or drop-leaf tables or for the reed or rustic tables sometimes used for eating on the dining porch or out of doors, some of the peasant pottery from Italy, Hungary or Brittany is very effective on dull colored linens, heavy cream linens or coarse peasant lace. Some of the more informal English or Japanese ware is both attractive and inexpensive. For tables laid in the more unconventional fashion the ideal flower arrangement is found in following the principles of Japanese flower decoration. Many of the low rounded bowls of Japanese make lend themselves well to this simple method of arrangement.

#### Avoid Overcrowding

ONE of the commonest mistakes in the treatment of the table is overcrowding it or giving it an appearance of confusion by the number of things put on at one time. The same laws of balance and simplicity that apply in other decoration apply in the laying and decorating of the table. The one thing that will help the inexperienced most in avoiding this mistake is to keep always in mind that all the china, glass, silver and linen that are used in serving the meal are the chief table decoration in themselves.

Peasant china, no matter how decorative in itself, should never be used on fine damask or rare lace because such a background demands the conventional china, and crash or colored linen is the more appropriate setting. Useless bric-a-brac or vases should never be scattered about the dining room, but nowhere else will copper, brasses or pewter show to better advantage. The dining room more than any other room must provide a becoming and harmonious background for the hostess and give to friends and other guests the key to the scale of living for the particular household. It is highly important then that the table in all

its appointments and the meals served should be in perfect keeping with the mode of life the family demands, no more elaborate and no less simple. These things if not kept in mind, are likely to be overdone.

For eating out of doors white linen should never be used, as it seems glaring and less restful to the eyes than some of the colored linens as well as less harmonious with the out-door setting.

The location of the dining room with reference to the rest of the house is important both in the matter of housekeeping efficiency and the comfort of the entire household.



An Overcrowded Grouping

Much needless work is caused if the room where the meals are served is too great a distance from the kitchen. At the same time the dining room should be easily accessible from the living quarters of the house. The pleasant effect of a well set table will be greatly enhanced if doors can be thrown open and guests be ushered directly into the dining room. If they must be escorted through a long, possibly dark hallway or through other rooms the result is not so pleasing.

For this reason, in planning a new house, the kitchen and dining room must be considered as one unit, to be located with the dining room portion close to the living room. Whether the dining room is to be separated from the living room or be a part of it will depend on the conditions to be met in the individual household. If the family is small it is often an undesirable waste of space to devote an entire room solely to dining. In the small house most convenient for the moderate sized family an effect of spaciousness may be given by throwing living room and dining room into one and including among the furnishings either a gate-leg table or a rectangular extension table that can serve as a library table when not in use for dining.

Where there is a sun parlor in connection with the living room this arrangement is particularly suitable. It permits a treatment of the three rooms as one in a way that makes even a modest sized home adaptable to large parties of guests. At



A Corner for Business

the same time the coziness of the small home is not lost, so that when only two or three sit down to the table the dining room does not seem too large.

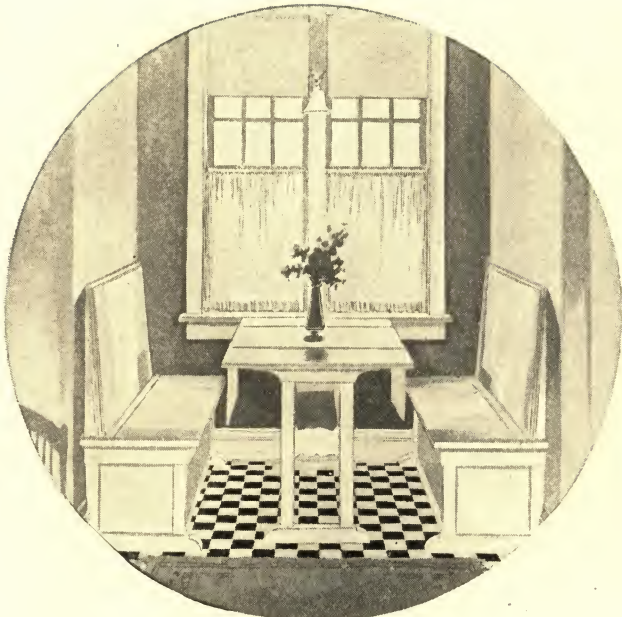
Where there is a large household or a great deal of entertaining, it is often found desirable to shut off the dining room from the living room. Folding French doors, which may be curtained like outside doors or windows, or sliding doors may be used for this purpose. They may be opened to make the dining room serve as an extension of the living room when an extra large living room is desired. When the table is being set for a meal they can be closed and permit the work to go on without disturbing the activities in the living room.

If the living room faces a pleasant view the windows should be placed so as to make the most of it. Nothing enhances the appearance of a dining room or any other room of the house in fact, more than plenty of light and fresh air.



A Room That Radiates Good Cheer





In the Sunroom



A Pullman Alcove

## Breakfast Nooks and Corners

**B**REAKFAST in many American homes is apt to be a helter-skelter affair in which the head of the household makes a mad dash to devour some food before rushing to the train or car that will get him to the office at the scheduled time. For that reason the breakfast nook is an all-important invention. It has enabled many families to start the day in an easier and more cheerful fashion.

The breakfast nook, as usually planned, is an alcove off the kitchen, near enough to be in easy reach of the stove and cupboards, yet separated from it sufficiently to give the feeling of an independent room. By its use the table may be set in the minimum of time and steps, and where there are no servants the housewife may sit down to breakfast with the rest of the family while watching whatever cooking is in progress on the stove.

In many of the most popular breakfast nook designs practically the entire equipment is built in. One end of the table is fastened to the wall and the opposite end is supported by a leg reaching to the floor. Where the table can be placed immediately under a window, especially one with an east exposure, a breakfasting place as cheerful and inviting as it is convenient may be provided.

High backed built-in seats are a further convenience provided in many breakfast nooks. If well designed, such seats can be made more comfortable than chairs, although their chief purpose is to economize space. A breakfast nook with a pair of such built-in seats is illustrated at the top of the page. The seats shown have hinged lids, and the space inside may be used for storage purposes.

In fact, in small houses or apartments where a children's room or nursery is out of the question a breakfast nook such as that shown above may serve as a play-room in addition to its main function, and the seat boxes may be used to store playthings.

An exceptionally attractive breakfast nook design is shown at the bottom of the page. It would be difficult to contrive a cheerier or more cozy place in which to have the morning meal. The series of three windows give a sunny and attractive outlook, while the mirrored doors

above the built in seats carry out the design of the windows and reflect the light and view from them, so that the room has the effect of walls composed almost entirely of windows. The simple but solid lines of the table and benches, with the projecting beams held in place by wooden pegs are in keeping with such a nook.

In some homes a bay window may be converted into a breakfast nook. The effective use of such an alcove for this purpose is shown in the illustration in the upper left hand corner of the page. The long casement windows which give a French door effect add to the light and airy character of the room. A profusion of potted plants and bouquets assist in giving a suggestion of the outdoors.

Instead of built in seats in this room a gate leg table is provided. It is painted in bright colors as is called for in such a room. The chairs are also painted to match the table.

A Cheerful Kitchen Corner

**A** BREAKFAST nook of another type is shown in the illustration to the right of the page. For this nook a cheery corner of the kitchen has been used. The table and chairs

are built on simple but attractive lines well suited for their purpose. Cretonne curtains at the double windows add to the inviting appearance of the alcove. The cupboard at the side is built high enough so that the kitchen work table can be slipped under it when not in use.

The table is shown set for breakfast with an electric toaster and coffee percolator attached ready to provide the toast and coffee. By this means a simple breakfast may be prepared at the table, while the cups and dishes used may be set down in a moment from the cupboard close by. This eliminates the bustle and rush which accompany the setting of a table in the



A Colonial Corner

dining room for a hurried breakfast, with many trips between pantry and dining room and the kitchen stove and the dining room a necessity.

In many homes where breakfast nooks have been provided they have been found so convenient and pleasant that many meals aside from breakfasts are eaten there when there are not too many present to overcrowd them. For this reason, where a nook is being included in plans for a new house special lights should be provided either overhead or in the side wall near the windows. These are essential where evening meals or early winter morning breakfasts are to be eaten there.

Where the problem of the home designer is to reduce household space to the minimum as present day conditions often make necessary, the breakfast nook is a real boon. By its use the house may be planned with the separate dining room completely eliminated. A combined living and dining room with a breakfast nook in which many of the meals are served solves the problem in many instances. A small household may have most of its meals in the breakfast nook, using the living room for dining only when guests make too great a number to be accommodated in the nook, which probably will not be often.



A Sunny, Airy Breakfast Bay



## The Electric Kitchen

**E**LECTRICITY, in addition to lightening the modern housekeeper's burden in many ways, is steadily carrying the cooking operations into the dining room, or at least into the breakfast nook which is used for the lighter meals.

The work of the dining room is cut down very materially, especially in the serving of breakfast and suppers and the Sunday night lunch to the family by the use of three or four of the electrical appliances that may be used right at the table. Many trips from dining room to kitchen range and back again are eliminated, and the joy actually sharing in the operations of preparing the brownest toast that can be made by the younger members of the family or of watching the cooking of food on the grill is a great satisfaction and gives some of the same zest to appetite that attends the cooking over an outdoor bonfire. When several breakfasts must be provided for, as they must be in many households, or when guests are delayed for a meal the use of the electrical appliances right in the dining room will lighten the work and give the hostess the chance to turn her attention to guests while the meal is being prepared.

The electric percolator has long been a familiar piece of dining table equipment. The cheerily bubbling coffee, spraying and sputtering under the glass dome of the percolator, is a pleasant addition to any

facilities for table cookery are available if conditions in the household make the preparation of other meals at the table desirable. The electric two-burner table range shown in the middle of the page will permit the cooking of a complete dinner at the table. In the range pictured four operations are going on at once. The unit at the left is heating a coffee pot and keeping the plates warm. The right hand unit is cooking potatoes below while it cooks a roast in the oven above. The ovenette shown to the right of the table range is made for use with the electric grill shown on the left of the range.

In using several electrically operated pieces at one time more than one should not be attached to the same lighting fixture. If there is such duplication there is danger of a blow-out, causing temporary inconvenience. Table use of electric cooking equipment is made possible because there are no odors or fumes caused by the heating current and there is little heat radiated.

The same factors make electric stoves a desirable kitchen equipment where the cost of electric current is not such as to make their use a luxury. Many electric stoves are provided with a time clock to shut off the current at the time for which set. By this means a housewife can put a roast requiring two hours' cooking in the oven in the morning, set the time clock and leave for the



A Quick, but Cool and Clean Breakfast

self-cooker. This is constructed on the same plan as other self-cookers, but the original heat for the cooking is supplied by electric current. The current is seldom required for more than forty minutes even for articles requiring long cooking, such as baked beans. After the current is shut off the articles must be left in the heated chamber for several hours so that it is necessary to plan meals carefully in advance to have them ready at the proper time.

Whatever the type of electric stove used, it is a great space saver in the kitchen and can be placed wherever it is convenient to install the necessary electrical switch. The use of an electric stove in the breakfast nook of a kitchen is shown in the illustration at the top of the page. This stove has several burners on top and an oven beneath. It can be placed close to the breakfast table without discomfort to those eating there.

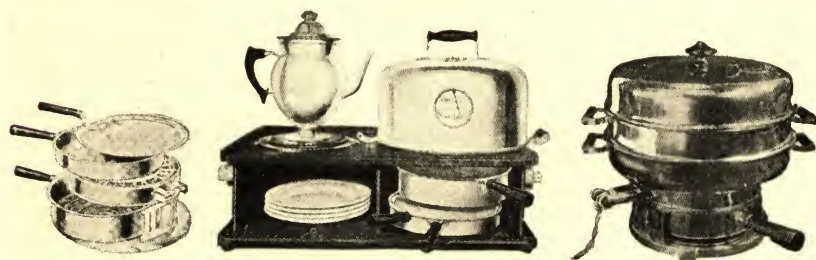
The pressure cooker can be used to great advantage with the electric range. Very little current will be used in the heating required and the whole meal can then be prepared in the cooker at the same time. The

food for two or three different courses can be put into the cooker at once and the entire meal, including some of the simpler kinds of dessert, cooked in little more than half an hour, so that time, labor and electric current will be saved and the food prepared in this way retains all the flavors and juices that were sometimes allowed to be lost in the other methods of cooking. The fact that foods are never scorched or burnt is one advantage of the cooker to the busy housewife who must be at other tasks while the food is cooking.

In the kitchen also electrically operated machinery is coming to play an increasingly important part. The kitchen illustrated at the bottom of the page is well provided with electrical equipment aimed to make the housekeeper's work easier. There is a dish-washing machine whose enameled top will serve as a convenient kitchen table. When the dishes come from the dining room they can be sorted and placed in the frames of the dish-washing machine, where the washing and rinsing of everything, with the possible exception of silver and glasses, will be

accomplished in such a way that the work of drying with towels is eliminated, so that the washer saves on both parts of the cleaning operation. The dish washer should be placed as near to the sink and to the storage place of the dishes as possible, so that few steps are necessary in placing the dishes which have been scraped and sorted at the sink in the washer, or again in putting them away in cabinets or drawers, whose enameled top will serve as a convenient kitchen table. The vacuum cleaner shown in use keeps spotless the floor of the kitchen as well as the floors and hangings of every other room of the house.

Electrical appliances used in the dining room should be started there if possi-



Electric Grill, Two-Burner Range and Ovenette

dining table. The fragrant coffee, poured steaming hot and served at once, is equally welcome.

The electric toaster, which toasts the bread to a crisp brown without requiring the watchful waiting at the kitchen stove formerly necessary, is another long familiar companion of the breakfast table. In the many families where the housewife does the cooking the toaster and percolator enable her to have breakfast with the rest of the family and at the same time serve hot, perfectly prepared food.

The electric waffle iron is another article that has released the housewife for an enjoyment of some of the most tasty morsels she prepares. By its use she can sit at the table and provide all present with waffles fresh from the grill without being exiled to the kitchen while the rest of the family enjoys them.

An electric tea kettle in which water can be heated for boiling eggs and an electric grill in which eggs or meat can be broiled and fried are other articles providing for table cookery.

Even more elaborate

day. At the proper time the current will be shut off and the housewife can return an hour before the evening dinner time to find the roast done to a turn and ready to serve after it has been reheated.

Another electric cooking device which cuts the amount of current used to a minimum is the electric



A Labor Saving Plant Complete





Here We Have System on a Big Scale

## Kitchen Efficiency

THE kitchen of our grandmothers' day, a long wide spacious room with white scrubbed floor, fireplace, Dutch oven, heavy cooking utensils which served not only as a place for preparing food, but as a place for serving it as well and as the center for most of the working and social activities of the household—that kitchen with its wonderful aromas and its irresistible charm, has inevitably been ruled out by the

new order of domestic arrangement which fits into bungalow, apartment and small house of today.

Kitchens nowadays are planned primarily for the preparation of food. Everything is within arm's reach and almost nothing is hidden. It should be a small room with large equipment. It should have the daily used tools and utensils placed where they are most accessible, and provide an adequate storeroom for the

supplies infrequently used. The greatest time and labor saving device for the kitchen and one of the most valuable pieces of equipment, especially in a household which is not located in a permanent place and must depend upon the cupboard space and arrangements that happen to be poor, is the kitchen cabinet. It is the work bench of the housekeeper, where all the tools and materials needed in the preparation of foods or the assembling of a meal are at hand and convenient. Here the cook can stand in one place and have within arm's reach all the essentials required for the making of a cake or the preparation of the vegetables for a meal with the exception of those foods which must be kept in the refrigerator.

Upon installing such a cabinet two things must be considered—first, the nearness to both sink and stove, the best position being just a step away to the left of the stove, with the sink as near as possible on

forks, stirring and measuring spoons, potato masher, eggbeaters, doughnut and cookie cutters, can openers, graters, icepick, corkscrew and bottle opener, knife sharpeners, etc. The lower shelf of the top section should be kept for the food materials in constant use, while the upper shelf in this section will take care of the assorted sizes of mixing bowls, measuring cups, casseroles and custard cups, etc.

### Convenient Home Made Cabinets

IN many of the most desirable cabinets now on the market there is included beside the flour and sugar bins the bread and cake drawers, a wooden support for the food chopper, a hook for bills and a rack for cook and account books. All of these features make for convenience.

The equivalent of the kitchen cabinet can be made quite easily and inexpensively by having the carpenter



A Clean Kitchenette in An Alcove



As Compact As on a Dining Car

the right, this compact arrangement making for quickness in the preparation of a meal and for efficiency as a step saver. Second, the cabinet should be of correct height, so that the person standing for a considerable length of time in the making of bread or pastry will not tire. If it is impossible to obtain one of the height needed, it can be raised by means of blocks or castors. To make the cabinet a good working center every inch of space must be planned and utilized to advantage. One convenient and practical working plan that has been worked out is as follows: In the bottom of the base section below the shelf, roasting pans, frying pans, saucepans, colanders; shelf of the base section; bread pans, pie and cake tins, pudding pan, muffin and cookie pans, food chopper, rolling pin, flour sifter, etc; utensil drawers, if not already furnished, with the required compartments, should be divided into spaces for knives and spatulas,

ter or handy man remodel an ordinary cupboard with shelves and drawers into a real work center. Some of the best features of the ready made cabinet can be purchased separately and installed in the replanned cupboard. If the kitchen is too small to allow a complete kitchen cabinet, a cabinet table with sugar and flour bin or a cabinet base under a window may be possible.

For the large kitchen a good working center can be provided by a table in the center of the room, as shown in the illustration at the bottom of page 36. The table top should be zinc, enamel, porcelain or any other material which can be easily cleaned and which is impervious to water, heat, grease, etc., and the housekeeper must see to it that it is of the right height. Shelves underneath the table for dishes and utensils in constant use and partitioned drawers for the knives, forks, spoons and miscellaneous tools used





A Step Saving Combination



A Built-in Dishwasher



A Handy Rack for Pots and Pans

in baking and cooking make a compact center. For the housewife who prefers to have her tools right at hand, without having to open or close cupboard doors, the lid and pan rack in the same illustration is most convenient as well as the shelf and hook arrangement above the sink shown at the top of page 36.

#### To Store Utensils

**A**NOTHER convenient assembling place for these same frequently used cooking utensils is provided for on a shelf underneath the sink. The nearness in this instance of range and sink makes this an especially desirable arrangement. An ordinary kitchen table can be made to serve as place for the cooking pans and tools by building a shelf over it on which to keep the mixing bowls, measuring cups, etc., while on hooks beneath hang the cooking utensils, while another practical arrangement is made by having half-inch iron bars horizontally placed

about the same width as that of the stove, screwed into the wall beside the stove, with a supporting vertical rod screwed into the ceiling uniting them. The utensils are then placed on hooks which are fastened on the horizontal rods.

For the housewife who doesn't want these inevitable tools and utensils in sight, and especially in the kitchen which must also serve as breakfast or dining room, pots, pans and such must all have proper and convenient store cupboards where they may be put out of sight but within arm's length when wanted. A cupboard built in on either side of the sink with the upper sections in each incased in glass doors to take care of the china, then with a broad shelf at the top of the lower section, which is the right height for working upon in the preparation of meals, and the lower sections fitted with drawers and compartments which will take care of utensils and supplies most often used, the kitchen sink becomes the main working cen-

ter. In one such cupboard a few narrow shelves built between wide ones will prove especially convenient, as well as shallow drawers for holding dish towels, waxed paper, cheesecloth, etc.

Where floor space must be conserved a folding table which forms the door of a small supply cupboard or china closet of the type illustrated at the bottom of page 36 will become an invaluable aid. A corner jog may be utilized as in the illustration on page 37, to store sewing trays, extra table leaves, etc., or for the ironing board, behind which are narrow shelves for laundry supplies and household tools. Such a corner cupboard could be fitted with two or three shelves above for the kitchen sink supplies and household first aid with the lower space for brooms, vacuum cleaner, duster, etc.

The excellent plan of alcoved range and built-in ironing board shown in the illustration at the bottom of page 37 also helps to conserve floor space and make a more

sightly kitchen. When the stove is alcoved and there is no room for a permanent shelf or table near, a movable table on wheels should be provided that can be used by the stove.

#### Selection of Sink

**T**HE selection of the kitchen sink, if one be lucky enough to choose this indispensable piece of equipment, will depend upon a number of considerations. If an electric dishwasher is to be installed, then a sink without drainboards may be desirable; but if the dishes are to be washed in it, then the double drain board type will prove most convenient and desirable. In the single drainboard sink soiled dishes are packed about the dishpan in the sink and the tendency to nick and break them is great; but with double drainboard the soiled dishes can be packed at the left and washed toward the right or vice versa, depending upon the position of the storage place. If the second drainboard is

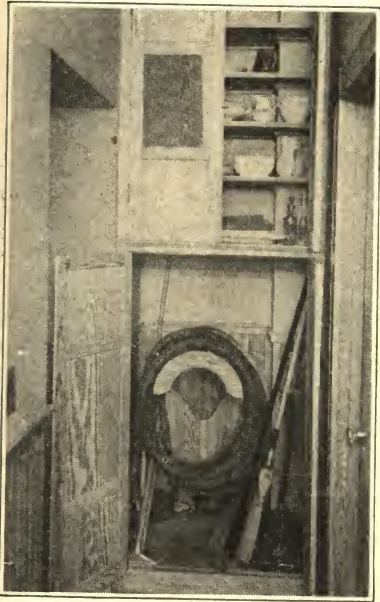


As Sunny As Sunshine Itself



The Center Table Is a Labor Saver





As a Broom Closet Should Be

impossible, then a service wagon or kitchen table may be used as its substitute and will be found indispensable during dishwashing. If a broad shelf or high radiator are installed on one side of the sink, then a large serving tray is just the right thing to receive the clean dishes on, as it can be carried with a large load to the storage places and thus save time and steps. Another main consideration in the installation of the sink is to secure one with leg supports that can be set at the proper height so work can be done without tired back muscles. If the sink chosen should be without length enough in leg support it can be supplemented with plain metal piping, which can be painted and enameled. This is really an important item.

#### Conveniences for the Sink

IF the sink is the iron kind with the wooden drainboards, the drainboards can be bound with nickel or zinc or they can be treated to make them impervious to grease and water by applying a coat of boiled linseed oil each night until the wood refuses to absorb more. Above the sink, unless it is placed underneath windows, which is by far the most desirable place to have it installed or near it at one side, a small cabinet not more than six inches deep should be built for holding scouring soaps, vegetable and other brushes. If the cabinet is made of wood, ventilation holes at the top and bottom of the compartment for brushes should be made; if of metal, blotting paper will prevent rust from the moist brushes.

In sinks of latest design the mixing faucet, which makes it possible to get water of any desired temperature is a great advantage. A towel rack installed near the sink saves steps for the worker, and a soap basket of wire hung on the faucets is another sink convenience. Paper bags designed especially for holding refuse, strong enough to hold the moist refuse and inexpensive enough to be discarded

after use, is a useful accessory for the sink. There are also small garbage containers, of the covered kind which may be attached to sink or table, now on the market, which are invaluable in the speedy disposition of vegetable parings and table scraps, which can be emptied when full into the larger garbage receptacle.

When space beneath a window permits, a shelf for cook books, card catalogs, account books, etc., can be made with a folding table beneath it, where the housekeeper can check bills, make out menus and keep up the business of the house while waiting for something to cook. Many trips to other parts of the house, when the laundryman, milkman or other tradesmen appear to have accounts settled, will thus be avoided.

For the first aid shelf in the corner cupboard the following outfit may be provided, unless a case already fitted has been purchased: One pair scissors, one pair tweezers, one tube of ointment for burns, one ounce iodine, one roll one-inch adhesive tape, one one-inch roll cotton bandage, same of gauze bandage, one yard antiseptic gauze.

The floors and walls of the kitchen should be so finished as to be attractive and restful to the eye and at the same time easily cleaned. The all-white kitchen looks well if it can be kept spotless every day in the week; but this is a difficult matter to accomplish, especially for the householder who does her own work or must depend upon the aid of one helper, because it shows the dust and dirt so easily and does not prove so comfortable for the eyes as soft yellows, buffs or tan. The more restful light relieves eyestrain and in the course of the day really prevents bodily fatigue to some extent.

If possible, the walls should be finished to the wainscoting in a metal tiling, which is easy to install on a wood or plaster wall, because it is comparatively inexpensive and with the minimum of labor can be kept absolutely clean and spotless. Oilcloth wall fabric is also easily

cleaned and is one of the cheapest and most satisfactory coverings. The ceiling can be calcimined or painted white and the woodwork may be oiled or painted a shade or two darker than the walls.

For the floor the best covering is without question the inlaid or battleship linoleum, because it has no bothersome cracks or splinters, wears a long period of years and is more easily cleaned than any other floor surface and does not absorb grease. If a plain or inlaid linoleum floor is thoroughly waxed with liquid floor wax it provides a coating which prevents the dirt from being ground into the surface. Then the floor can be swept and wiped with a damp cloth, the wax being renewed every five or six weeks. Varnishing the linoleum will also add to its life and make it easier to clean.

A kitchen floor may be treated with a waterproof varnish or smooth, hard, gray or buff floor paint, but these both require occasional renewal. Any floor that absorbs grease and that requires hours of time in the course of a week with pail or scrubbing brush should be replaced or refinished as soon as possible.

The kitchen should be so arranged that it can be quickly and easily ventilated to prevent overheating and for the escape of odors. Either an outside door and a window on opposite sides of the room or two windows on opposite sides are desirable. Unless the windows are of the casement type, they should be so made and screened that they can be let down from the top as well as raised from the bottom, so that while the fresh air comes in at the bottom the odors and heated air may pass out at the top.

Two accessories that are valuable aids in the ventilation of many kitchens are the metal hood over the stove and an electric fan.

For artificial lights, several side lights are better in the kitchen than a single center fixture. One side light by the stove, one by the sink and another by the working center,



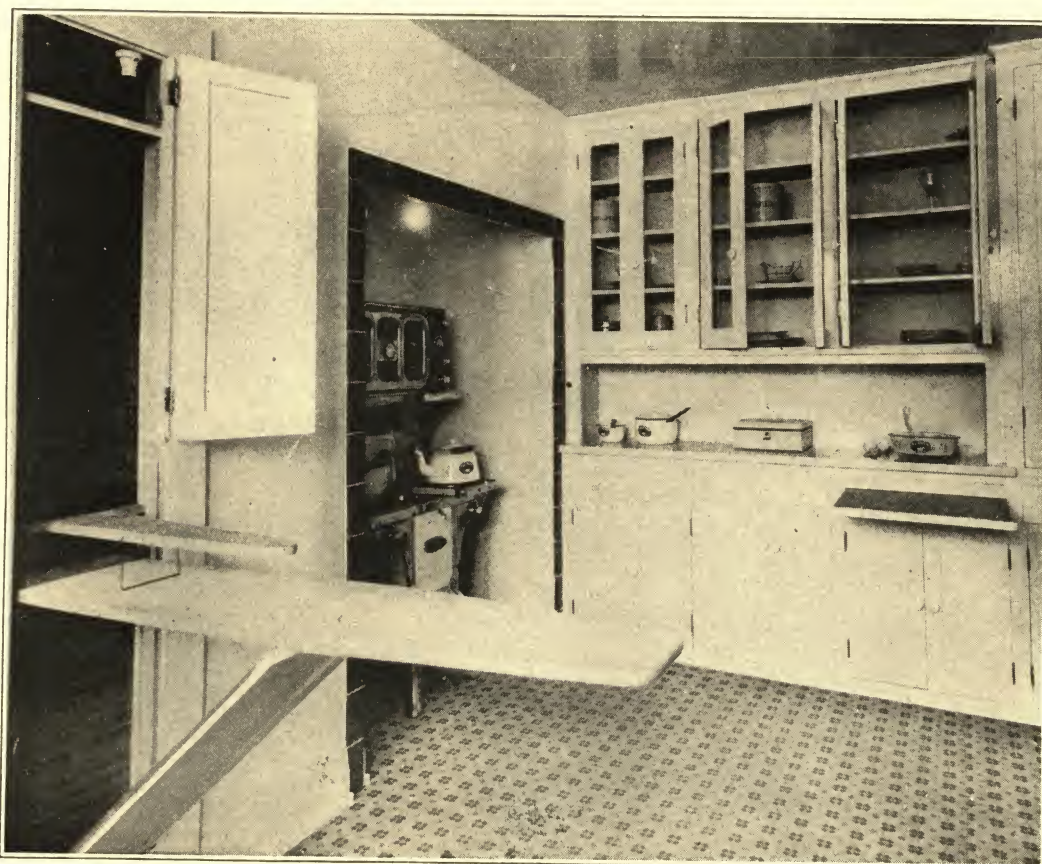
The Butler's Pantry and a Handy Closet

either table or cabinet, unless the equipment is so placed that one light is sufficient for some two main pieces, is the best arrangement, and for much of the evening work only one light is needed at any one time.

#### Housekeeper Should Be Consulted

THE housekeeper who can plan and supervise the building of her own kitchen is indeed fortunate, for she can plan with the same thoroughness for her workshop that the workshops in the business world are planned. Every working unit can be made to suit the individual worker and the room can be made just large enough to be efficient in catering to the requirements of the particular family using it. Best of all, if she desires built-in kitchen cupboards to pantry, no pantry is thrust upon her; if she abhors the opening and closing of cupboard doors, then she can arrange every tool and utensil on open hook or shelf, and the morning sun may shine in her kitchen windows or the best view of the street may be hers, as she chooses.

There is no doubt that a well arranged kitchen, if attractively decorated, would arouse less antagonism to kitchen work and would tend to keep servants longer. If one's life is limited to a box of a bedroom and a dejected trinity of stove, table and sink, submission inevitably breaks its bounds, and the thought of the joys unrestrained at the Annual Policemen's Ball puts the kitchen into such a combatant state that the household from grandmother down is obliged to mind its every p and q. Plan your kitchen as a pleasant place, and watch the belligerents become as passive as lambs. Little things which add to the comfort of a maid will be greatly appreciated. A high stool with a low back makes dish washing easier. In addition to this, there should always be a scrap basket for the cook's convenience for the waste odds and ends.



It Is Hard to Suggest Greater Efficiency Than This



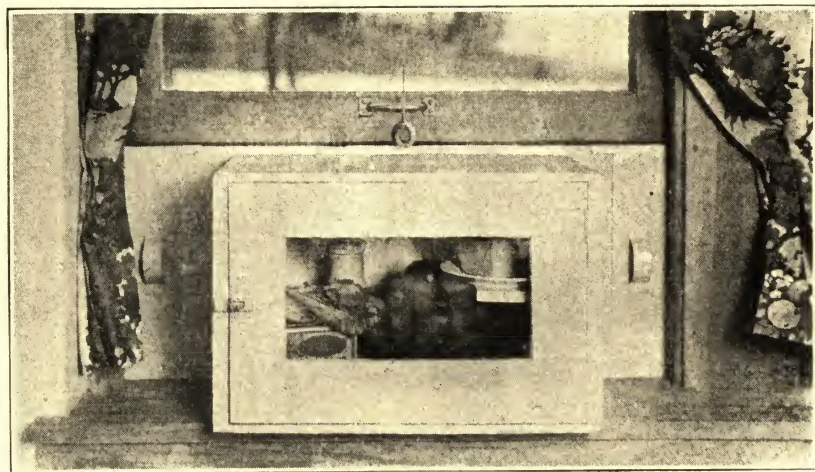
## Food Preservation

A DEQUATE refrigerator space is an economy. It is also an essential to setting a good table in the summer season, and in many cases, especially where there are young children dependent on milk as a chief article of diet, it is a necessary health safeguard.

If there is no ice chest or equivalent cooling place in the home, the waste of large quantities of food cannot be prevented in the hot season. Milk delivered in the morning will be sour before the evening meal, and even meat delivered in good condition is apt to be unfit to eat within a short time if it is not cooked at once. This is due to the fact that most meat now sold has been kept frozen in storage, and after being thawed out decom-

others cool the air of the interior air chambers to the desired point without using ice. A motor using a small amount of electric current is used in most types to operate the cooling system. The cost of operation of most of these is not expensive, but the first cost is considerably higher than the refrigerator which is dependent on the regular calls of the ice man.

Several cooling devices for between season use or as an auxiliary to the ice chest are found of value by many housewives. One of these is the window cooling box shown at the top of the page. This consists of an oblong box with a screen at the back to admit outside air. The box is fitted into an oblong sheet of metal at the back that can be adjusted to the width of the



An Ice Saver in the Cold Weather

months of the year. The opening at the rear of the box may be partly closed in winter to avoid freezing. It then solves the problem of keeping food in cold weather when it is in danger of freezing outdoors and the rooms inside are too warm to prevent its spoiling.

The Iceless Refrigerator

ANOTHER iceless refrigeration device, known as the California type, is shown in the illustration in the righthand column of this page. This is a cooling box built on the principle of a dumb-waiter and is available where there is a cool cellar beneath the kitchen or pantry. It is raised to have the food placed in it and then drops to the level of the floor. The top is of the same material as the floor, so that its existence is not suspected except when it is raised.

There are numerous designs of cooling jars which may be placed in the basement and used to keep food cool. Most of these are made of porous earthenware, and if kept moist maintain a temperature lower than that of the surrounding air through evaporation. As most basements are considerably cooler than the outside air in hot weather, the jars are a practical auxiliary for the ice chest, if not a complete substitute.

In all devices for cooling and keeping food fresh special emphasis must be placed at all times on cleanliness. The type of refrigerator which is easiest to keep clean should be given preference, and care should be taken to remove any fruit or



California Refrigerator Raised



California Refrigerator Down

A Built-in Refrigerator



poses rapidly.

Most city and suburban families are able to have frequent ice delivery and consider an icebox or refrigerator an essential part of their equipment. Plans for even a small home should provide for a refrigerator, and in making such plans two things should be kept in mind: convenience in icing and care of the waste water.

When a house is being constructed an ice chest can be built into the wall with an outside door on a rear or side porch with little extra expense. This avoids the annoyance and dirt of having cakes of ice carried into the kitchen and perhaps clear across it to a pantry. Equally annoying is the necessity, where no drainage provision has been made, of having a drip pan under the refrigerator. Such a pan often overflows, flooding pantry or kitchen, unless the housewife has an exceptional memory for such details of her work. A small drip basin under the refrigerator, with a length of iron pipe leading through the wall to the outside, is all that is necessary to take care of this. If desired, the pipe can be connected with the drain pipe from the kitchen sink instead of extending outdoors.

Self-cooling refrigerators of various types are on the market. Some of them manufacture their own ice, while

window. The window is raised to admit this metal sheet and is then pushed tightly against it. Such a box is available for keeping food during many



Dehydrating Vegetables at Home

other articles in danger of decaying. Frequent scouring of the food chambers, and periodic cleaning of the ice receptacles to remove the slime and dirt likely to accumulate from the melting ice are necessary if the hot weather food supply is to be kept sweet and untainted.

In addition to the various methods of cooling food in the home, a number of processes of canning and drying are economical means of preserving it. Most of the drying methods heretofore in use have left a product greatly inferior in taste to the fresh vegetable. A new process known as dehydration is a great improvement over the older methods. It evaporates the moisture from the vegetable by a slow heat that leaves the flavor almost unimpaired. To restore it to a close resemblance to its fresh state it is only necessary to soak the dehydrated vegetable in water.

The dehydrator is a metal box much resembling an oven. It has a number of sliding shelves on which the vegetables are spread for drying. It is then placed over the stove with the burners turned low and left there until the vegetables are shriveled and dry.



## Pantry Perfection

**T**HE importance of the pantry and its position in the plan of the house depend largely upon the working arrangement of the kitchen it is subsidiary to; if the kitchen is large and contains the essential working center, with all the often used supplies, and if the dining room is arranged with the suitable storage places for china, linen and silver, then the pantry becomes a mere storage

tiresome trips across the kitchen will be eliminated.

The cupboards for china and for supplies not kept at the working center of the kitchen, drawers for the necessary kitchen and dining room supplies, compartments for vegetables to be used within a few days should all find a place within such a pantry. Many housewives prefer to have the working center in the pantry, especial-



Built-in Bins and Cupboards



Movable Cabinet of Metal

ly if the range and sink are both installed in the kitchen only a few steps away. With a broad shelf the correct working height below a window and extending on either hand above supply cupboards and a cabinet base, or with a movable kitchen cabinet installed, the housewife not only prepares the various dishes for the meal in the coolness of the pantry, but stirs the cake and kneads the bread as well.

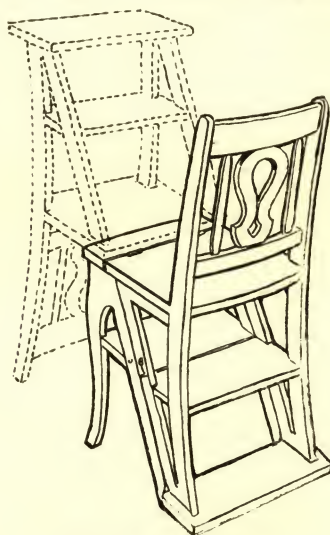
### Built-in Refrigerator Convenient

**I**F an outside wall is possible in the plan for the pantry, a built-in refrigerator which is iced from the exterior of the house should be placed in it. The iceman will be able to accomplish his work more easily than when it is placed in the back entry or in the kitchen, and the added burden of cleaning the unavoidable tracks and drippings from the ice is avoided. Placed here, the contents of the refrigerator are more accessible to both kitchen and dining room, where they are to be used, and on the broad shelf opposite salads can be prepared and the final touches added to desserts and other dishes which are taken directly to the dining room when needed without necessitating countless steps across the kitchen.

A refrigerator of any size or make can be cased into the wall. If the opening for the ice chamber is in the top, then an opening is cut in the back or side of the ice chamber and a new door fitted into it. A door is made in the wall a very little bit larger to correspond in height and

position with the door of the ice chamber, and a quarter round moulding fitted on the inside wall after the spaces between chest and wall have been made tight and smooth. This makes the casing neat and sanitary so that there are no difficult crevices to clean. The drain from the ice chest can quite easily be connected with the basement drain.

This type of built-in refrigerator



You Always Need One

can be used all winter as a cold closet by removing the outside door and fitting in a screened and slatted door so that the cold air enters and operates in place of the ice.



A Model Pantry China Closet



A Serving Window



Welcome on Warm Days

If the pantry is large enough to admit a china sink it saves the time and energy used in carrying dishes into the kitchen and back again to the china closet. The illustration at the top of the page shows a shallow recess above the drain board which does not interfere with work at the sink and which can be used to good advantage in the transfer of dishes to the dining room, and the shelf above is used for the storage of small articles to be used in the dining room.

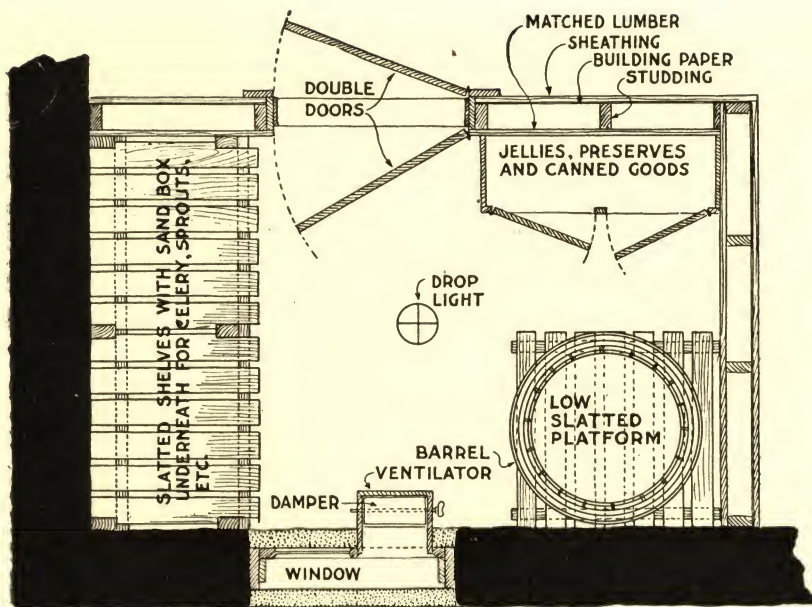
The best method of eliminating all the difficulty in reaching high shelves and incidentally saving many a bothersome trip to the basement on cleaning day is to have on hand in the pantry or kitchen a folding ladder chair as in the illustration in the middle of the page. It provides the extra chair which is often needed and is more convenient for most household purposes inside than the larger and clumsier stepladder which must be carried up from the basement each time it is needed.

The pantry cupboard for cooking dishes should have a wooden door perforated for ventilation. If placed under a window see that some light gets into it. This will make it more convenient and more sanitary. Do not put the utensils on the floor—have a hook for each pot. Arrange the utensils in the beginning and keep each one in its place; in fact, the secret of pantry orderliness is to have a place for everything and to keep everything in its place. An

place for the more infrequently used supplies and can be tucked away almost anywhere near the kitchen. If the house is small enough to afford only one pantry, which is to be used essentially as a working unit in the service portion of the house, its relation to both kitchen and dining room, as well as the inside cellar entrance, is of the greatest importance.

If it is situated between the kitchen and the dining room with the inside cellar door easily accessible, innumerable steps will be saved and many





Floor Plan of Fruit Closet Illustrated Below

## A Food Storage Room

IN these days of well stocked corner groceries, telephones and automobiles the basement is likely to be a neglected region devoted mainly to coal bins and the storage of worn-out furniture. The old fashioned cellar with its row upon row of glass jars filled with fruit, its milk pans and its display of smoked meat dangling from the rafters is left in many communities merely as a fond and mouth watering recollection of childhood in the minds of the older generation. The housekeeper of today is accustomed to step to the telephone in the morning, call up the grocer and order the food to be used for that day's lunch and dinner. What small things are kept on hand are apt to be limited to those in the pantry and the ice chest.

While this is the natural result of changed conditions, the wise housekeeper will not neglect completely the possibilities of the basement as a food storage place. Even though it is no longer necessary for each household to lay in during the summer the entire supply of fruit and vegetables to be used during the winter, the presence of sufficient reserve in the basement is a comfort in case of emergency and an aid in providing that sense of completeness and security that marks the true home.

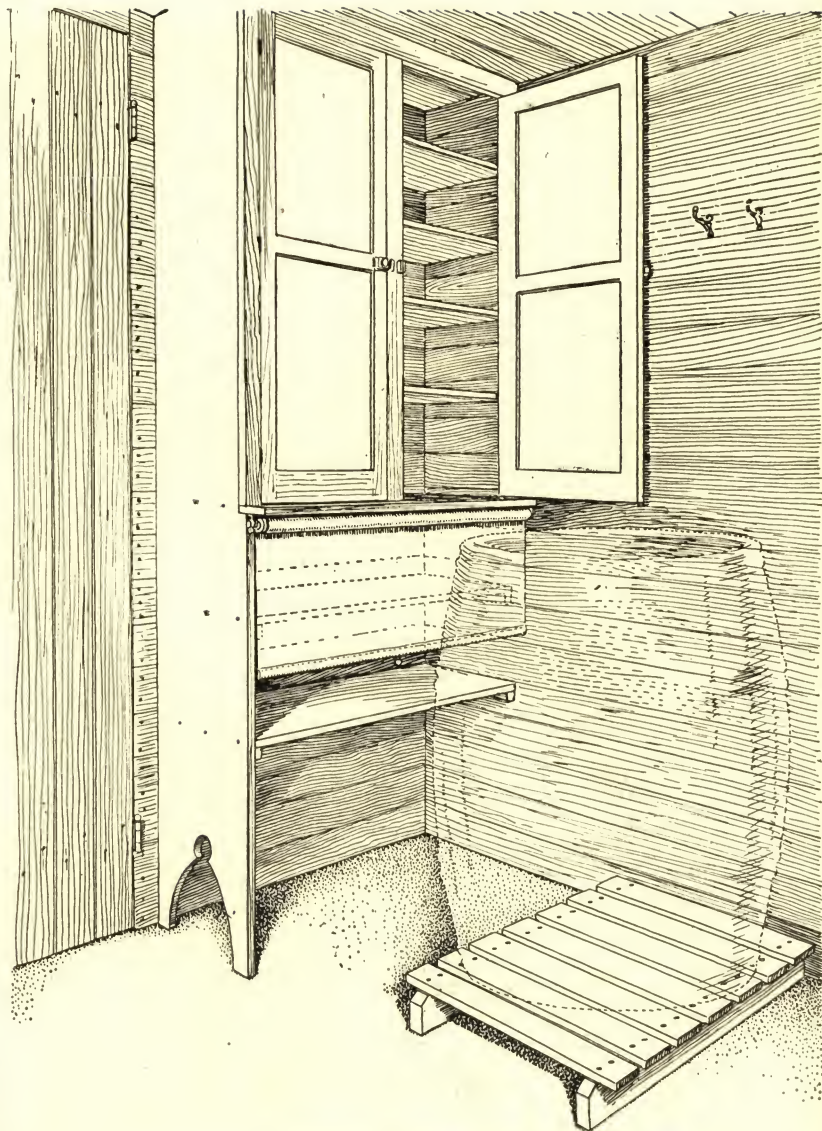
Careful planning, either in building the house or in partitioning off basement rooms for food storage, is necessary where there is a heating plant in the basement. The old fashioned cellar was under a house that was heated by stoves or fireplaces. It had no artificial heat in winter, and so remained at a temperature low enough to keep vegetables from sprouting or spoiling.

The presence of a furnace or heater for a hot water plant in the basement will make it too warm to keep vegetables for more than a few weeks at a time unless the storage room is partitioned off and provided with ventilation from outside. The best partition for such a storage room is a cement or stone wall of the same material as the rest of the foundation. If built at the same time as the rest of the foundation, the extra cost of providing such a vegetable storeroom will not be great. An outside window should be provided for ventilation.

If the room is added afterward, it may be formed by constructing two wooden partition walls in one corner of the basement as shown in the plan at the upper lefthand corner of this

page. The partition is a double one, formed by nailing 2-inch by 4-inch studding to the floor and ceiling of the basement and putting a sheathing of boards on each side of the studding. The air space between the sheathing serves to prevent heat from the furnace or steam from the laundry from entering the room. Double doors which give access to the room serve the same purpose.

To bring fresh air into the storeroom, a ventilator of the sort shown in the illustration at the bottom of the page may be easily constructed from a few planks. One pane of glass may be removed from the cellar window and the end of the ventilator box fitted in the opening thus made. The bottom of the ventilator should be about six inches from the floor. To regulate the amount of cold air admitted on excessively cold days, when there might be danger of freezing, a damper similar in principle to those



A Corner for Pickles and Preserves

used in stove pipes may be placed near the end of the ventilator.

In storing vegetables it is important to permit a free flow of air all around the containers in which they are placed. For that reason barrels in which vegetables are kept should not

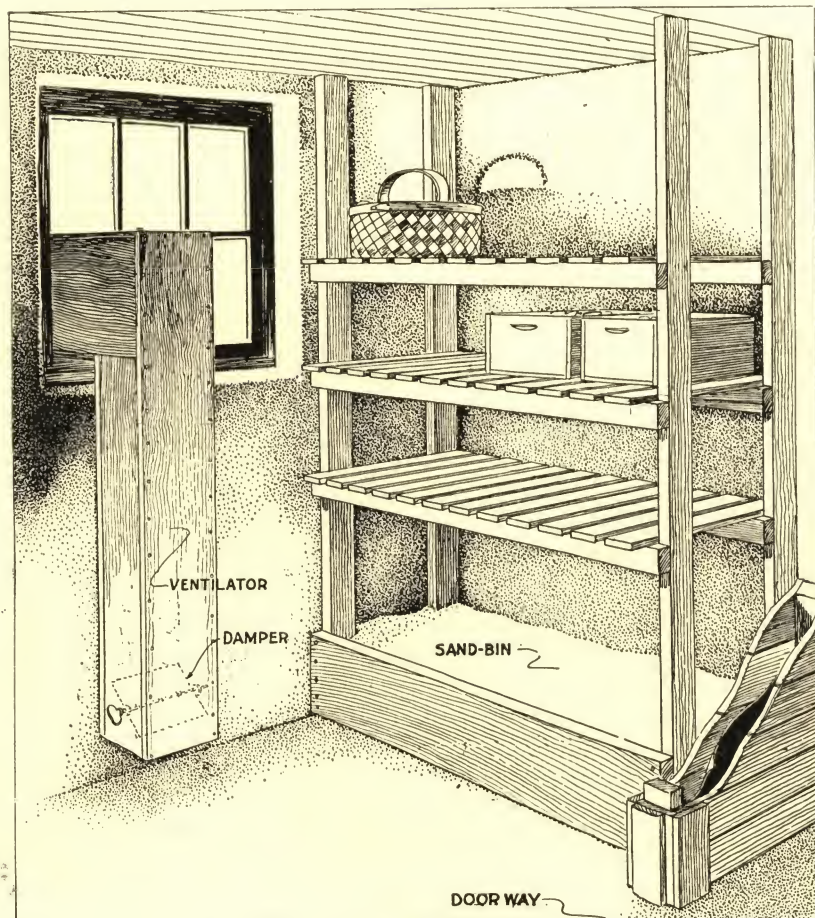
be placed directly on the cellar floor, but should be raised a few inches above it on a slatted platform. Shelves for boxes of vegetables should also be slatted.

A good arrangement for such shelves is shown at the bottom of the page. They are made from a few extra lengths of the studding and wooden sheathing used in the partition wall. A sand bin for the storage of celery, sprouts, etc., may be placed at the base of the shelves.

Closed cupboards may be provided for canned fruit, as it is not necessary to provide for ventilation in storage and the doors of the cupboard keep dust from collecting on the outside of the cans and jars. If doors are not desired, a window shade furnishes a convenient protection for the storage shelves, as in the lower part of the cupboard shown in the upper righthand corner of the page. These shelves would furnish a convenient storage place for jars of pickles. The same illustration indicates a barrel of vegetables in place on the slatted platform provided for it.

The home equipped with a food cellar of this type will be able to lay in several months' supplies of vegetables and preserved fruit at the seasons when they are cheapest and most plentiful. If there is a home garden the beets, carrots and other root vegetables may be stored here in the confidence that there will be little loss from decay or sprouting. This will permit the household to get the full benefit from the garden and not be forced to live mainly on one or a few crops at the time they are ripening and then have to purchase vegetables later.

The small expense and labor required to fit up a storage room of this type will be repaid many times.



A Ventilated Basement Fruit Storage Room









Breakfast in a Sunny Room Starts the Day Right



## The Home Laundry

MANY housewives who carefully plan their kitchen with a view to eliminating all unnecessary waste of space and energy neglect to give more than the most casual consideration to the detailed working out of a satisfactory laundry.

If the laundry is equipped with the best electrical machinery, is light and airy as every laundry room should be, and has been planned for convenience and the minimum of steps and energy in the performance of the tasks devoted to it, the old time drudgery of washing and ironing, which was dreaded half the week and took the other half to accomplish will be almost eliminated. With a little foresight and planning the basement can usually be arranged so that the right of way near the outside entrance door can be given to the laundry and the heavy baskets of wet clothes need never be carried far. For no matter how up-to-date the equipment, the hardest work for the housewife necessarily comes in lifting the clothes.

For the same reason, if the clothes are to be boiled, the installation of laundry stove or gas plate is one of the things to determine first in the arrangement of equipment. There must be no long trips across the basement floor from tub to boiler and back again. One satisfactory arrangement is secured by placing the tubs underneath the windows nearest the outside entrance door with gas plate for boiling as close on the right as space and convenience will permit and with the electric or hand power machine directly back of the tubs. In this instance clothes can be lifted from washer to boiler, from boiler to tub and from washer to tub with the minimum time, steps and labor.

Some housewives prefer to have the tubs placed out in the room so that they are accessible from all sides. With this arrangement the laundry stove or gas plate can be placed back of tubs and washer as the worker will be able to manage

clothes from the back and from either side. There is a feeling of roominess in such a plan and plenty of space for baskets and all the laundry accessories can be assembled nearer to the washing center.

Electric ironers or the hand ironing board, if used in the basement, should be placed in an advantageous position for both light and air. The work of ironing will seem less if there is a pleasant outdoor outlook and since there is bound to be a certain amount of heat and steam in the process regardless of method the coolest place in the laundry should be sought as well as the most attractive.

### The Accessories One Needs

THERE are a number of laundry accessories which are almost necessities but which are often omitted through thoughtlessness even in an electrically equipped laundry. A cabinet for supplies should be kept as near as possible where they are to be used. Unless the basement provides a very complete tool and work bench handy to the laundry then a shelf should be placed near the tubs on which the lubricating oil, grease for the electric motor and the like are kept, with a place also for screwdriver, wrench, pliers and other tools indispensable for the instant repair and care of the equipment. A space for waste and cloths for wiping and drying machine and wringer should be included unless provided for elsewhere. To have all the tools and materials at hand for the proper care and repair of all the equipment will insure its being done when needed rather than put off until a more convenient time, a delay which often results in a breakdown for which the householder pays dearly.

Wooden racks, made of slatted

wood for the baskets to rest on to keep the bottoms from contact with the wet basement and a small perforated platform placed in front of the tubs for the worker to stand on are both desirable additions. A screen fitted into the basement drain nearest the tubs will prevent clogging from broken buttons and other obstructing refuse from the clothes. If a light proof shield is kept to put on the wringer when not in use it will give longer and more efficient service because the wringer rolls are made of a rubber compound which tends to harden when exposed to sunlight or extreme heat.

For ironing a sturdy rigid board of the right height should be selected. The convenient height for the average woman is from 32 to 34 inches from the floor and this is an important consideration whether the folding board is used or a board bracketed on the wall. The board should first be padded with wool felt or old blankets and covered with unbleached muslin or similar material. Tapes attached to the covering allows it to be pulled taut avoiding wrinkles and no seams should be in it.

### Selecting the Right Sort of Iron

IN the selection of the iron whether it be the old-fashioned sad iron, one of the electric or gas irons the weight is the most important consideration. An iron of six or six and a half pounds is not too heavy for the average ironer and will make extra pressure unnecessary. If a sad iron must be used provision should be made for a good thick holder, a stand for the iron, a cloth with which to wipe it and wax to rub it on to keep it moving smoothly. With an electric iron a convenience and a safeguard is a snap switch which should be placed on the cord about

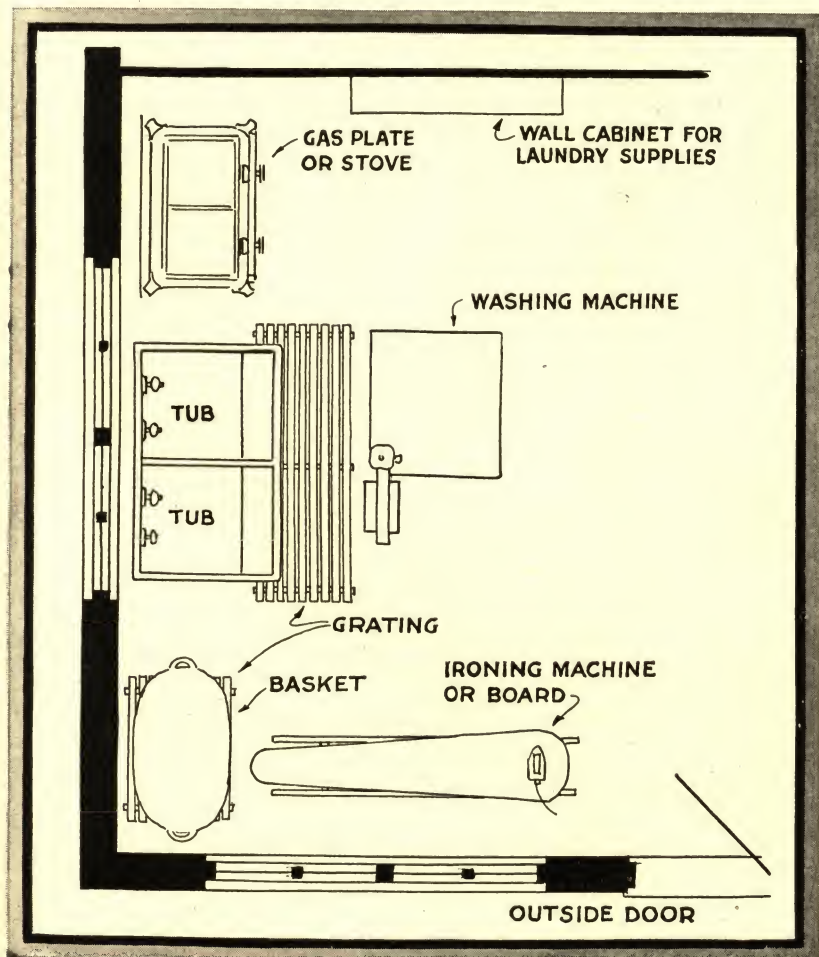
eighteen inches from the plug which fits on the iron.

Included in the ironing equipment should be a sprinkler of some kind, a whisk broom, a bottle with perforated cap or stopper (which may be purchased in any hardware or variety store).

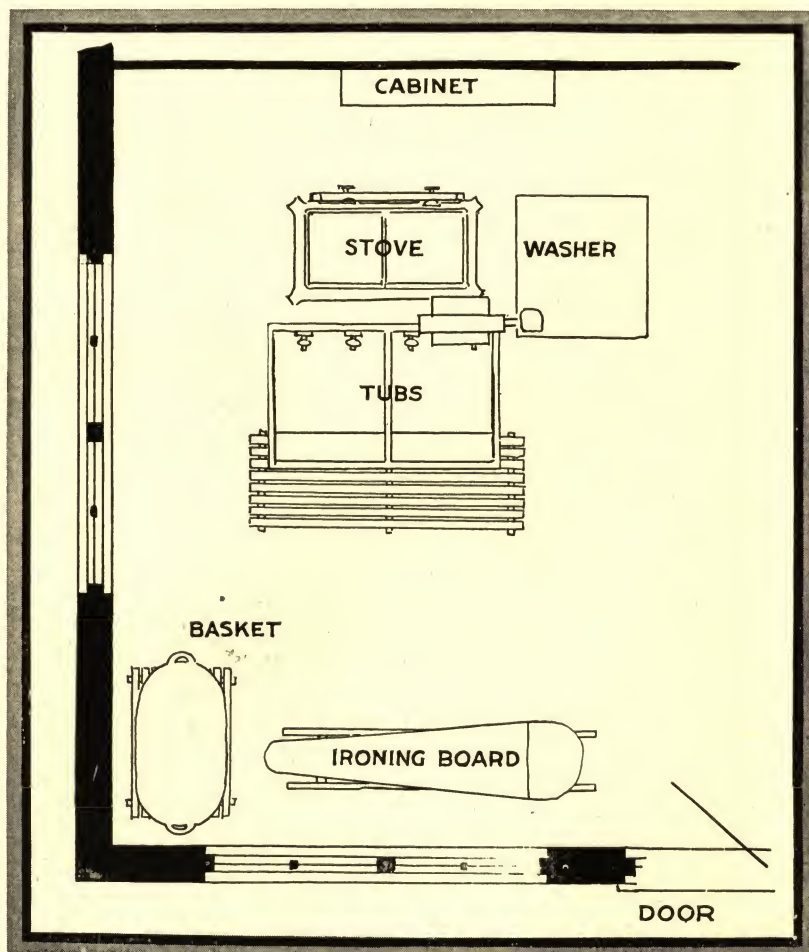
If the ironing board is to be built and cased into the wall, coolness and light are the important things to be considered in choosing a place for it. If sad irons are to be used nearness to the stove must of course enter into the selection, but if gas or electric iron is available the board need not be cased into the kitchen but in some cooler, more attractive room where there is plenty of light and air. A shelf for the iron and accessories should be built in the case above the board so that all the equipment will be at hand.

If the laundry is electrically equipped an electric ironer will be installed. The type selected will depend upon the individual preference of the housewife, some finding hand control most convenient, others foot or magnet control; but always durability of the mechanism should be sought. The saving of time and energy in operating will depend in large measure upon the careful planning of the laundress. About ninety to ninety-five per cent of the average family work can be satisfactorily accomplished in this way.

Where space is limited, or where clothes poles are not desirable a dryer may be selected that has a metal socket to be put into the ground which a standard with arms and line attached fit into. This may be taken down and put into the laundry when not in use. The arms are made to collapse and shut like an umbrella so that it is quite easy to manage. For the apartment houses the roof dryers of this same type are attached by means of a bracket arm of metal or a base which holds the standard. These dryers swivel around, which helps the drying and gives the sun a chance at



An Efficient Laundry Layout, with Tubs Under Windows



A Laundry Well Arranged, with Tubs in Center of Floor





A Moving Picture of a Day's Washing Well Done

**Soaking to Washing**—The clothes have been soaked and are being wrung from the soaking water through the wringer into the tub. After five to fifteen minutes of washing each piece will be thoroughly and uniformly clean.

**Washing to Rinsing**—The first load is now washed and ready to be wrung into the rinse water.

**Rinsing to Bluing**—When all the suds have been thoroughly rinsed out of the clothes, they are ready to be wrung into the bluing water.

**Bluing to Basket**—From bluing tub to basket—snowy, clear white clothes, ready for drying. The washing is now completed—an hour or two has done it—the cost has been less than five cents for electricity—and a great amount of effort and work has been eliminated.

all of the clothes hung upon it.

#### A Good Indoor Clothes Dryer

ONE of the best types of indoor dryers to be used when the weather is unfavorable for outdoor drying or when other conditions prevail which necessitates it is an overhead dryer with pulley attachment. This dryer consists of a series of wooden bars which may then be drawn up to the ceiling after the clothes have been hung and while not arranged to hold large sized pieces is very satisfactory to be used in a household where there are several small children and a small daily washing is inevitable.

If the house contains a laundry large enough to admit a complete laundry equipment an artificial dryer may be found desirable. These dryers are manufactured in various sizes and the heating may be accomplished by coal laundry stove, gas or steam. In selecting an artificial dryer the one which provides for thorough ventilation is the best, as there is a tendency in artificial drying toward the yellowing of the clothes which good ventilation will prevent to a great extent.

But fortunate is the household which possesses a back yard of sufficient size to have the clothes line stretched around four poles where the sun and air will do the work of bleaching. Then a good heavy woven line which will stand the strain of heavy wet clothes and a spool for winding which can be bought for the purpose and plenty of clean strong pins will make the drying outfit complete. If the pulley line is used, especially when it is accessible only from a window a metal bracket arm, attached to the casing of the window and arranged to swing inside so that the clothes may be fastened on indoors should be provided to lessen the danger.

To prevent the line from sagging and save the large pieces from touching the ground, a long pole with a notch at one end and a point at the other is the usual solution but there are now small devices manufactured to be attached to the line for taking up the slack. The clothes pin pocket apron or a basket of convenient size with round handle can be used for carrying the pins while hanging the clothes.

The washing machine has without doubt been the greatest boon as a labor saver of any of the household

devices and inventions. From the old-fashioned hand power machines to the newest perfected electric machine that laundry experts have been able to devise the work of the laundry has come gradually to occupy less time, thought and energy in the household. There are so many different kinds and makes of electric washers on the market today that it is comparatively easy to select one which will fit the individual needs of the housewife. The durability and efficiency of any of the standard makes is without question and will bring big returns to the housewife for the money invested.

Judgment must be used in operating a machine. For particularly soiled clothes the amount put into

as quickly and easily as possible. A great advantage of the home laundry is that articles can be treated individually according to their needs, but unless there is skill and intelligence used in making the most of this opportunity it will go for naught.

There are innumerable washing compounds, bleaches and water softening powders on the market, each accompanied with detailed directions for their use. Many of them are doubtless valuable work savers, but their merits should be judged from their effect on the clothes themselves as well as their effectiveness in cleaning. Thus most bleaching preparations are too strong for laces, fine handkerchiefs

warm oven for two or three days before they take on the desired whiteness.

Another plan for whitening lace, pocket handkerchiefs and similar articles is as follows: First steep in cold water for a few hours, when the soiled parts can be cleansed by pressing them together between the hands. There should be no violent rubbing. A good white soap should then be used on them, when they should be folded flat in a dish and left over night. They should not be left in water, but should be wet enough to melt the soap completely through the texture of the articles.

Next day pour onto the clothes a kettleful of clean, boiling water. Cover the vessel containing the clothes at once so that the steam is kept in. After twenty to thirty minutes wash the articles and then rinse them in plenty of tepid water. If they are not sufficiently whitened, spread them, well pulled out, while wet, upon a large dish and place in the sunshine. Sprinkle with clean, cold water several times a day. Continue this for two or three days. Then wash again in a clean "scald" as described before.

Lace articles should never be starched, but may be stiffened by soaking in cold water in which two or three lumps of loaf sugar have been dissolved. The articles should be stretched out as smooth as possible while wet and then dried flat on a towel laid on a table or other smooth object.

Window curtains must also be handled carefully to get good results and avoid injuring them. Each curtain should be either shaken free of dust or hung on a line and brushed down thoroughly with a soft-haired brush before being washed. Then prepare a soaking liquid by melting a small quantity of borax in warm water; soak for an hour or two, then squeeze between the hands to remove the superfluous water. Take some good soap, chip it in hot water and stir until all the soap is melted and a fine lather produced.

By this time the water will be moderately warm. Immerse the curtains in this, pass them repeatedly through the lathered water, or work them up and down. Rubbing should be avoided; when absolutely necessary, do it gently and without a brush. Squeeze out the soapy water and rinse in plenty of soft, warm



Modern Devices for Ironing

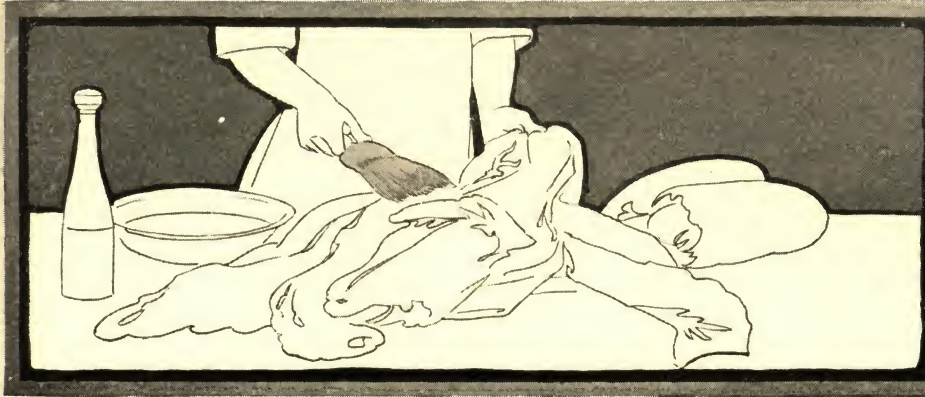
the machine at any one time must be reduced and the length of the operating period increased to get satisfactory results.

In operating the well equipped home laundry several fundamental facts should be kept in mind. One of these is that the life of the fabrics and the freshness of the coloring are as important as the removal of dirt

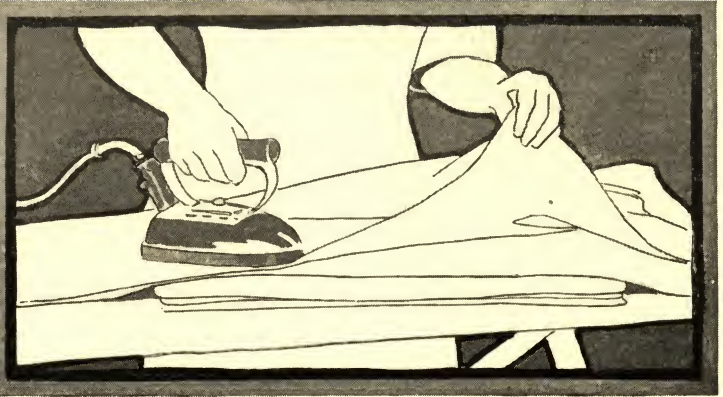
and other delicate articles. If possible to place such articles in strong sunshine for many hours at a time, the sunlight will be found an excellent bleaching agent which acts without injury to the fabrics.

Another method, if the articles cannot be bleached in sunlight, is to stew the articles in water. It may be necessary to leave them in a





Sprinkling Devices—Bottle and Broom



Use a Pad to Save Buttons

water. Wring carefully.

Curtains should be dried quickly. If in the country, they may be spread to dry on clean grass. Otherwise they should be stretched and pinned to wooden frames while drying. Cooked starch should be used in stiffening them. Mix good starch thoroughly in warm water, which should be made to boil for fifteen or twenty minutes. While cooling add a little indigo blue for pure white curtains. The starch should be thick. Draw the curtains through the starch, squeeze out gently and dry rapidly.

If it is desired to tint the curtains, an ecru color may be obtained by mixing coffee with the starch, which should have no bluing. Tea will give them a more decided hue of the same color. A yellow tint will be given by mixing saffron with the starch. A decoction of logwood may be used to give the curtains a delicate pink coloring. The basis of these coloring starches is prepared as follows:

Soak one pound of white glass for twelve hours, using just enough water to make it into a jelly; dissolve this with boiling water, adding about eighteen to nineteen pounds of Paris white; add more water until the compound is diluted to the consistency of milk. This starch may be colored to taste. A little Prussian blue and vermillion (in the proportions of two to one) gives a fine lilac. Raw umber and a pinch of lampblack gives a gray. Vermillion and red lead (in the proportion of three to one) produces a tender rose. Indigo blue just tinted with vermillion gives a lavender. Chrome yellow and a pinch of Spanish brown gives lemon yellow; Indian yellow and burnt sienna (in the proportion of two to one) gives a buff hue.

When red bordered towels or napkins are being washed they may be prevented from fading by putting a little borax in the water.

To remove marks of scorching in ironing, the following preparation is effective if the threads of the cloth have not been entirely burned through: Vinegar,  $\frac{1}{2}$  pint; Fuller's earth, 2 oz.; dried fowl's dung, 1 oz.; soap,  $\frac{1}{2}$  oz.; the juice of 2 large onions. Boil these ingredients together to the consistency of paste, spread the composition thickly over the damaged part and allow to dry. After one or two washings all trace of the scorching will disappear.

Special care must always be taken in handling flannel garments in the laundry. New flannel should always be washed before it is made up, in clean warm water, as warm as the hand can bear and entirely by itself. The soap used should be rubbed to a lather in the water to prevent hardening the flannel.

Wash the flannel in this manner through two warm waters, rinse it

in another warm water with just sufficient soap to give it a whitish appearance. This rinse water should be colored slightly with bluing. After putting through the rinse water, wring it by hand, shake it well and dry slowly. While drying shake, stretch and turn the flannel

several times. When dry clap it and stretch it with the hands and roll it up smoothly until wanted.

In washing flannel or flannel garments, prepare a good lather in hot water. When the water is just warm throw in the flannel and work it up and down, backward and forward.

Scrubbing must be avoided, and no soap should be rubbed on the flannel itself, as it will cause shrinkage. Rinse in warm water, twice if necessary. Use neither very hot nor cold water, as either will cause the flannel to shrink.

A solution of hard soap to which strong ammonia has been added may be used to bleach flannel which has become yellow. A composition of  $1\frac{1}{2}$  lbs. of hard curd soap, 50 lbs. of soft water and  $\frac{2}{3}$  lb. of strong ammonia solution may be used for this purpose. The article to be bleached should be left in this solution for several days.

If more speed is desired in the bleaching it may be accomplished by placing the flannel for 15 minutes in a weak solution of bisulphite of sodium to which a little hydrochloric acid has been added.

Great caution should be used in ironing flannel. They are usually better if not ironed, but if necessary to do so the article should first be dried and then spread on an ironing board. It should then be covered with a slightly damp cloth over which the ironing should be done, pressing the iron down heavily. The iron should not be too hot.

To wash delicate fabrics of muslin or pique, make a strong lather with best white soap dissolved in soft water and use while warm, but not hot. Wash the dress in this, but do not soak previously. When the lather appears soiled squeeze out the dress, throw away the lather and proceed with a second solution of the same, and continue in this manner until the dress is thoroughly clean. Then rinse it in cold water and afterward in cold water, slightly blued.

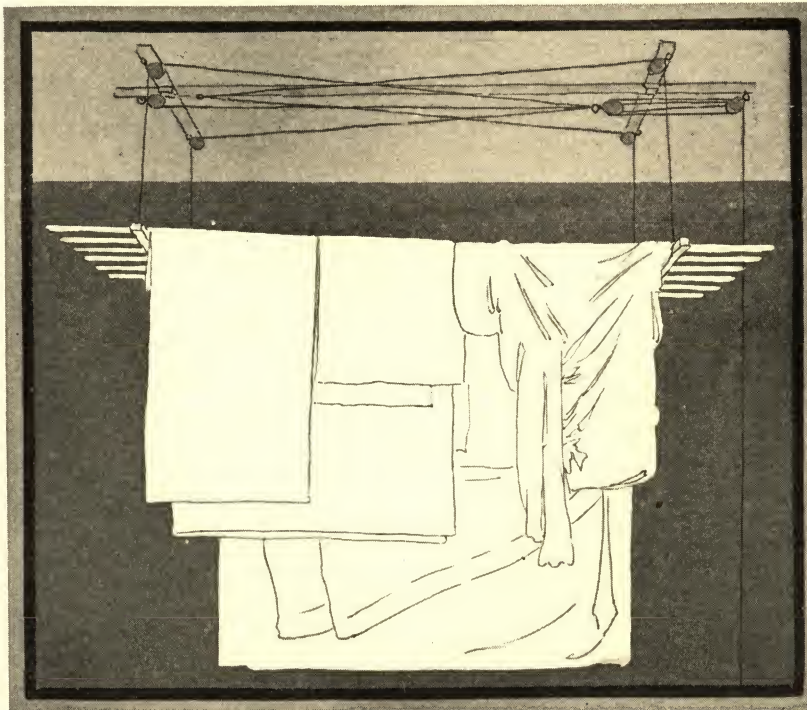
Squeeze all the water out of the dress, but do not wring it. If dried outdoors hang it in a shady place.

Special care must be taken in starching. Use a large basin and have plenty of starch. Dissolve in the starch three or four inches of wax candle. After the starch is laid on squeeze it well out of the article and while it is still wet put between some old sheets or tablecloths and pass it between the rollers of a wringer or under a mangle to remove all lumps of starch. Finish by ironing. Piques should be ironed on the wrong side, as lightly as possible.

If more people realized that the life of clothes will be considerably prolonged by careful washing and ironing, a great amount of carelessness would be avoided. Many persons are careless when wringing clothes, and wring the buttons off as a consequence. Then, too, they often place the clothing in the machine so that one color will fade on to another. When ironing, if the starch sticks to the garment, it is likely to tear thin material when the iron is pulled up too abruptly.



A Labor and Space Saving Outdoor Dryer



Rack for Drying Clothes Indoors



## Cleaning Trade Secrets



A GREAT part of the house-keeper's life is occupied in a war on dirt. Whether the work is done with or without the aid of servants the general in command in this war should be armed with the fullest possible knowledge of the materials and compositions that will aid to keep every corner of the house and every object of its furnishings wholesome, clean and sanitary. For the comfort and livableness of the house depends upon gaining constant victory in these battles against dirt without too apparent a struggle.

Modern equipment in the home is making less and less of the old semi-annual or annual housecleaning when the entire household was turned upside down for a week or more while the whole house was renovated. Vacuum cleaners, greater care in planning and furnishing houses with a view to cleanliness and a more general knowledge of the importance of sanitation have all tended to make constant cleanliness the watchword instead of only periodic spotlessness. This emphasis on cleanliness need not interfere with the full and free use of every part of the house. The old-fashioned front parlor and spare room, closed tightly against light and air after every chair and nick nack has been set primly in place, is not often found in homes of the present day. With a sufficient knowledge of the aids to cleanliness now available the modern housewife can permit constant use of the entire house and still keep it clean without too great a slavery to housework.

Chemistry and other branches of science have provided compositions and materials that will clean various objects and materials in the house quickly and effectively without injuring them. The housewife who has a full knowledge of these will find her work much easier and at the same time will be able to preserve the freshness and beauty of polished surfaces, decorated walls and patterned hangings.

Formulas and methods which have been found most effective in cleaning various parts of the house are given here and in the pages which follow. Knowing them or having them where they can be referred to as easily as the recipes of her cook book the housewife can proceed quickly and confidently where she might otherwise be tempted to ex-

periment with possibly ruinous results.

The various cleaning formulas and directions included here are listed alphabetically by the names of the objects to be cleaned.

**Alabaster**—1. Immerse in milk of lime, which is made by mixing a little slaked lime in water. After an hour or more in this bath remove and dust with French chalk.

2. If objects cannot be moved wash with soap and water in which a little ammonia has been placed.

**Aluminum**—Wash in a solution of 30 grams of borax in 1 l. of water containing a few drops of aqua ammonia.

**Blackboards**—Make a strong lye of pearlshes and soft water. Add as much unslaked lime as it will take up. Stir it together and let it settle a few minutes; then pour it into a bottle and cork. When used it should be diluted with water and rubbed on with a scouring motion. It should not be allowed to remain long on the board as it will draw the color with it if not rubbed dry at once.

**Blankets**—1. Put 2 large tablespoonfuls of borax and 1 pint of soap into a tub of cold water. When dissolved put in a pair of blankets and let them remain overnight. Next day rub them, drain them out, and rinse thoroughly in two waters and hang them up to dry. Do not wring them out.

2. Scrape 1 lb. of potash soap or soda soap and boil it down in sufficient water so that when cooling it can be beaten with the hand to make a jelly. Add 3 tablespoonfuls of spirits of turpentine and 1 tablespoonful of spirit of hartshorn. With this wash the article well and rinse in cold water until all the soap is taken off. If there are delicate colors that may run apply salt and water after rinsing. Then fold between two sheets, being careful that two folds of the blanket do not lie together and smooth with a cool iron.

3. Soak for fifteen minutes in plain soft warm water. Prepare a soft jelly with good laundry soap and boiling water, using 1 lb. of soap for every blanket. Pour the soap jelly into a tub of warm water and lather it up well with the hand. Add a little borax if the blankets are very dirty. Wring the blankets from the soaking tub and throw into the lather. Stir them about in the lather and let soak for 10 minutes. Then hand rub all parts of the blankets, paying special attention to stains. Take them out and wring them and then rinse twice in clean warm water. Dry well but do not expose to great heat. Rub with a piece of clean rough flannel to make them fluffy.

**Brass and Copper**—Oxalic acid is the principal cleaning agents and many preparations for cleaning and polishing brass and copper are on the market. A formula used in all United States arsenals and claimed to be the best in the world for this purpose is as follows: Mix in a stone jar 1 part of nitric acid and ½ part of sulphuric acid. Have ready a pail of fresh water and a box of sawdust. Dip the articles to be cleaned in the acid, then dip in the water and rub with sawdust. If the metal is greasy dip first in a strong solution of potash and soda

in warm water. This cuts the grease and permits the acid to act.

**Bristles**—First cleanse well in a preparation of tepid water and soft soap. Then dip in cold water. Leave for 2 or 3 days in an aqueous solution of sulphurous acid, after which wash and dry.

**Brushes**—Dissolve a piece of soda in some hot water, allowing a piece the size of a walnut to 1 qt. of water. Put the water into a basin and after combing out the hair from the brushes dip them, bristles downward, into the water and out again, keeping the backs and handles as free from the water as possible. Repeat this until the brushes look clean; then rinse the brushes in a little cold water, shake them well and wipe the handles and backs but not the bristles with a towel. If possible put in the sun to dry; if not put near a fire but take care not to put too close.

**Candle Grease, Removing**—1. Rub with 95%. 2. Scrape off as much as possible with a knife, then lay a thin, soft white blotting paper on the spots and press with a warm iron. Repeat if necessary. Afterward rub the cloth where the spots have been with soft wrapping paper.

**Cane Seated Chairs**—1. Clean with a solution of oxalic acid. 2. Wash with hot water and a sponge, using soap if necessary. Dry in a current of air.

**Carpets**—1. A very dusty carpet may be cleaned by dipping the broom in cold water, shaking off all the drops and sweeping a yard or so at a time. Wash the broom and repeat the process until the entire carpet has been swept.

2. Use 1 pt. of oxgall to 1 pail of water. After washing apply cold water to rinse out the oxgall, and finally sponge as dry as possible.

3. Dissolve 10 parts of soap in 20 parts of water, and 3½ parts of soda and ½ part each of ammonia water and alcohol. This is solution a. Solution b, the actual cleansing liquid, consists of 4 parts of ammonia water and 3 parts of alcohol diluted with water. Solution b is first used and when the dirt loosened by it has been removed the soap solution is applied. The carpet need not be taken up, and thus treated will regain much of its original color.

4. Sweeping. Tea leaves dried and saved for the purpose sprinkled on floors and on short piled carpets and rugs will attract the dust and aid in cleaning without injuring carpets or furniture. Thick piled carpets such as Axminster and Turkey carpets should be swept always the way of the pile. By so doing they may be kept clean for years but otherwise the dust will be swept into the carpet and soon spoil it.

**Celluloid**—Rub with a woolen cloth and a little tripoli and polish with a clean woolen rag.

**Clocks and Watches**—Take 1 qt. of water, about 1 teaspoonful or 5 gr. of liquid ammonia or alkali; into this liquid grate or scrape fine 5 gr. of common soap. These proportions can be varied as desired. The articles to be cleaned should be plunged into this bath, where they should be allowed to remain at least 10 minutes. 20 or 30 minutes is usually better, especially if clocks are being cleaned. The ar-



ticles should be wiped dry when removed from the bath, or polished up with a brush dipped in rectified benzene.

**Combs**—Small brushes manufactured purposely for cleaning combs may be purchased at a small cost. After brushing well wipe the comb with a towel or other cloth. Never wash combs with water as they are roughened and the teeth may be caused to split by water.

**Corks**—Wash in water containing 10 per cent of hydrochloric acid, then immerse in a solution of sodium hyposulphite and hydrochloric acid. Finally wash with a solution of soda and pure water.

**Crocks and Jars**—1. Use hot water and sal soda. 2. Use 1 oz. of muriatic acid rubbed on the exterior and interior with a piece of flannel. Wash afterward with hot water.

**Engravings**—Cut a stale loaf of bread in half with a clean knife, and pare the crust away from the edges. Place the engravings on a flat table and rubbing the surface with the freshly cut bread in circular sweeps lightly but firmly, remove all the surface dirt. Then soak the prints for a short time in a dilute solution of hydrochloric acid of about the strength of 1 part of acid to 100 parts of water and then remove into a vessel containing a sufficient quantity of clear chloride of lime water to cover them. Leave there until bleached to the desired point. Remove, rinse well by allowing to stand an hour in a pan in which a constant stream of water is allowed to flow, and finally dry off by spreading on clean cloths. If necessary iron between two sheets of clean paper.

2. If very dirty take two parts of common salt and one part of common soda and pound together until very fine. Lay the engraving on a board and fasten it with drawing pins. Then spread the mixture, dry, equally over the surface to be cleaned. Moisten the whole with warm water and a little lemon juice and after it has remained a minute or even less tilt the board on its end and pour over it a kettleful of boiling water, being careful to remove all the mixture and avoid rubbing.

**Felt Hats**—1. Clean with ammonia and water. If greasy wash with Fuller's earth. Size with glue size



## Every Woman Should Know



made by diluting hot glue with hot water and applied on the inside of the hat and block while warm.

2. Grease and paint may be removed from hats by rubbing with turpentine or benzine. If the turpentine leaves a mark finish with a little alcohol.

**Flannel**—To wash flannel or flannel garments prepare a good lather in hot water; when just warm throw in the flannel and work it up and down, backward and forward. Avoid scrubbing and rub no soap on it. Rinse in warm water, twice if necessary. Never wash or rinse in either hot or cold water as either will cause shrinkage.

**Floors**—1. For unpainted natural color wood floors take some clean, sifted white sand and scatter on the floor. Dissolve 1 lb. of American potash or pearlash in 1 pt. of water and sprinkle the sand with this solution. Have a pail of very hot water and scrub well the boards lengthwise with a hard brush, using the best mottled soap. Change the water frequently. Ink stains may be removed by using either strong vinegar or salts of lemon.

2. For painted or varnished floors first wipe off with a clean dry cloth, then wash with a solution of linseed oil soap or some other high grade vegetable soap and water. Then wipe off with a dry cloth.

**Fur**—1. Take powdered whiting and put in a damp place for a day, but do not let it get wet. Then rub it vigorously into the fur with the hand. Leave it for a day, then give it another rubbing. After this shake out as much of the whiting as possible and brush it with a clothes brush. Then to remove dirt from the skin at the base of the fur lay the piece over the back of a chair and brush briskly with the point of the brush, blowing the dirt out as you proceed. Lastly pour alcohol on a plate, dip the point of the clothes brush in this and lightly pass it over the fur, moving it in the same direction the fur runs.

2. Take equal parts of flour and powdered salt, heat them in the oven and thoroughly rub the mixture in the fur. Then shake the flour and salt from the fur.

**Gloves**—1. White hard soap, 1 part; talcum, 1 part; water, 4 parts. Shave the soap into ribbons, dissolve in the water by the aid of heat and incorporate the talcum.

2. Benzine with  $\frac{1}{2}$  part each of oil of mirbane and oil of lavender.

**Gold and Silver Lace**—Gold lace, spangles, clasps, knots, etc., may be brushed over with the following composition: Shellac,  $1\frac{1}{2}$  oz.; dragon's blood,  $\frac{1}{2}$  dr.; tumeric root,  $\frac{1}{2}$  dr.; digest with strong alcohol, decanting the ruby red tincture thus obtained. After coating with this composition a warm flat iron is gently brushed over the objects so as to heat them slightly. Silver lace or embroidery may be dusted over with the following powder and well brushed: Take alabaster and strongly ignite it and while still hot place it in corn brandy; a white powder is thus obtained which is fit for use after heating over the flame of a spirit lamp. It should be dusted on from a linen bag.

**Lace**—Wash thoroughly in beer. Clap the lace well and then pin it to a towel in the shape you wish it to take. When nearly dry cover it with another towel and iron it with a cold iron.

**Leather**—1. Belts. First brush the belt off with a mixture of linseed oil, 4 oz.; precipitated oxide of zinc, 1 oz.; dry over a stove at a temperature not over 160 deg. F. When thoroughly dry roughen by means of pumice powder and apply another coating. Dry as before and varnish with amber or copal varnish.

2. Moldy leather. Remove the surface mold with a dry cloth and with another cloth apply pyroligneous acid.

3. Russet leather mountings. Remove all stains and dirt by rubbing the leather with a cloth and a little oxalic acid and restore the color and finish by the use of salts of lemon applied with a woolen cloth. Rub the leather until a good polish is produced.

4. Morocco leather. Strain well over a board and scour with a stiff brush, using tepid water and soft soap made slightly acid with oxalic acid; when done unstrain the leather and dry in a cool place. While scouring take care not to saturate the leather, but keep the board to which it is fastened inclined. When dry oil lightly over the surface with a rag.

**Linoleum**—Wash the linoleum with a mixture of equal parts of milk and water, wipe dry and rub in the following by means of a rag: Yellow wax, 5 parts; turpentine oil, 11 parts; varnish, 5 parts. As a glazing agent a solution of a little yellow wax in turpentine is also recommended.

**Marble**—Soft soap, 4 parts; whiting, 4 parts; sodium bicarbonate, 1 part; copper sulphate, 2 parts; boil the whole together for 15 minutes. Mix thoroughly and rub over the marble with a piece of flannel and leave it on for 24 hours; then wash it off with clean water and polish the marble with a piece of flannel or an old piece of felt.

**Matting**—Wash with water in which bran has been boiled, or in weak salt and water. Dry it well with a cloth. To remove grease wet a nail brush in slightly salted water, rub on Castile soap and scrub the place. Have the water boiling. Continue to scrub with soap until the spot disappears. Wash with clean cloth and rub dry. Always rub lengthwise of the grain.

**Nickel**—To clean nickel plated objects dip them for a second or two in a 2% solution of sulphuric acid, rinse in running water and finally with a mixture in equal parts of distilled water and alcohol. Dry in sawdust.

**Painted Walls, Woodwork, Etc.**—Provide a plate with some of the best whiting to be had. Have ready some clean warm water and a piece of flannel which dip into the water and squeeze nearly dry. Then take as much of the whiting as will adhere to it and apply it to the painted surface, when a little rubbing will instantly remove any dirt or grease. After this wash the part well with clean water, rubbing it with a soft chamois.

**Paintings**—To clean an oil painting, take it out of its frame, lay a piece of cloth moistened with rain water on it and leave it for a while to take up the dirt from the picture. Several applications may be required to get a perfect result. Then wipe the picture gently with a tuft of cotton wool damped with absolutely pure linseed oil. Gold frames may be cleaned with a freshly cut onion; they should be wiped with a soft sponge wetted with rain water, a few hours after the application of the onion and should finally be wiped with a soft rag.

**Papier Mache**—1. Wash with water, dredge with flour and polish with a dry flannel cloth.

2. Rub thoroughly with a paste made of wheat flour and olive oil. Apply with a bit of soft flannel or old linen, rubbing quite strongly. Wipe off and polish by rubbing with an old silk handkerchief.

**Pearls**—Soak them in hot water in which bran has been boiled, with a little cream of tartar and alum, rubbing gently between the hands when the heat will admit of it. When the water is cold renew the application till any discoloration is removed, then rinse in lukewarm water. Lay them on a white paper in a dark place to cool.

**Pewter Articles**—Pour hot lye upon the metal, throw on sand and rub with a hard woolen rag, hat felt or whist until all particles of dirt have been dissolved.

**Satins**—1. Cleanse with a weak solution of borax or benzine. Sponge moderately lengthwise of the fabric, not across it. Iron on the wrong side only.

2. Black Satin. Boil 3 lbs. of potatoes to a pulp in 1 qt. of water; strain through a sieve and brush spread smoothly over a board or table. The satin must not be wrung but folded in cloths for 3 hours and then ironed on the wrong side.

**Silk**—Sponge faded silk with warm water and soap and then rub with a dry cloth on a flat board, after which iron on the inside with a smoothing iron.

**Silk Hats**—Dust carefully, then with a silk handkerchief apply petrolatum evenly and smoothly down with the same handkerchief until it is dry, smooth and glossy.

**Velvets**—1. Dip in a bath of benzine weakened by the addition of a little water. Dry thoroughly but not too rapidly. Then to stiffen the back of the fabric prepare a strong solution of gum arabic in warm water. On taking the vel-



vet or plush out of the bath dry it and then brush the back all over with the gum. This stiffens the fabric and prevents the pile from getting loose. When dry turn the velvet over on the right side and brush it upright so that the pile lies upright and in the right direction.

vet or plush out of the bath dry it 2. To raise the pile. Cover a hot iron with a wet cloth, lay the velvet or plush over it and beat carefully with a clothes brush. Lay the stuff on a smooth place and do not touch until it is thoroughly dry.

**Wall Paper**—1. Mix together 1 lb. each of rye flour and white flour into a dough which is partially cooked and the crust removed. To this add 1 oz. of common salt,  $\frac{1}{2}$  oz. of powdered naphthaline, 1 oz. of cornmeal and  $\frac{1}{8}$  oz. of burnt umber. The composition is formed into a mass of proper size to be grasped in the hand and in use it should be drawn in one direction over the surface to be cleaned.

2. Take a loaf of bread and after removing the crust soak it in a cloudy household ammonia. Make it wet enough so that it can be worked into a ball in the hands. Rub the paper lightly with it and as the surface becomes soiled knead it until a clean surface is exposed.

**Windows**—1. Paint and putty. Put sufficient saleratus into hot water to make a strong solution and with this saturate the paint which adheres to the glass. Let it remain until nearly dry, then rub it off with a woolen cloth.

2. Polishing. Castile soap, 2 oz.; boiling water, 3 oz. Dissolve and add the following in fine powder: Precipitated chalk, 4 oz.; French chalk, 3 oz.; tripoli, 2 oz. Mix and reduce with water to a pasty consistency.

**Wool**—To 7 qts. of soft water add 2 oz. of the best soft soap. Stir over a fire until the soap is dissolved. Divide into two vessels to one of which add a teaspoonful of ammonia for each quart of liquid. Place the woollens to be washed in the solution containing the ammonia and stir and press with smooth sticks. Transfer the woollens to the second vessel, which is now cool enough to be borne by the hands, and squeeze and press them in the liquid. Squeeze them out by hand but do not wring them and then press between dry towels.



**S**POTS likely to be dropped on any fabric which is in use may ruin its appearance and destroy its usefulness unless successfully removed. In such removal of stains and spots it is necessary to use an agent that will not merely remove the foreign substance from the cloth but will also leave both the color and the fabric uninjured.

Since both the texture of different fabrics and the chemical nature of various stains vary widely, no panacea for the removal of all stains is to be found. Different chemical combinations which will act on the particular stain to be treated without affecting the fibers of the cloth or the chemicals of the dyeing substance must be found in each case. Amateur experimenting is likely to result either in destroying the fabric or spotting it worse than it was before.

Fortunately we have the results of the work of large numbers of chemists who have found the agents that will remove most of the stains most likely to be encountered and will accomplish the result without injuring or fading the fabric. Most of the substances used are called solvents, as their chemical action is to absorb the stain, thus removing it from the cloth. The solvents are divided into two main classes—organic and inorganic.

Whenever possible, organic solvents should be employed, as they are less liable to affect the colors and they have no injurious effect upon the fibers. Where inorganic liquids or solutions are used it should be borne in mind that acids have an injurious action on vegetable fibers and alkalies on animal fibers, where a vegetable fiber will withstand the action of alkalies and animal fibers will withstand acids.

The chief organic solvents used in removing stains and spots are acetone, alcohol (methylated spirit), amyl acetate, amyl alcohol, aniline, benzene, benzol, carbon tetra-chloride, chloroform, ether, turpentine. They are employed either alone or in combination.

Water, either hot or cold, is the most useful inorganic substance employed in removing stains. It may be used on fabrics not ordinarily considered washable if care is taken. The stained place should be laid on a clean cloth or, if possible, stretched upon two closely fitting concentric rings such as are used in embroidery work. The stained place should then be carefully sponged with cold or warm water, care being taken not to use more water than is absolutely necessary. After the removal of the stain the place is rubbed as dry as possible with a dry cloth to avoid the production of a sweat mark. With silk fabrics a small quantity of acetic acid may be put in the water to preserve the luster.

Articles from which stains have been removed by organic solvents can be dried off at once. If there is a possibility of a sweat mark remaining the goods can be rinsed through benzene where the spotting agent is soluble in benzene. Care must be used in handling very mobile solvents, such as ether, as they will readily spread over a considerable area of the fabric. In doing so they will carry with them in solution some of the substance to be removed, making the small stain into a much larger one. After treatment with solvents the fabric should be carefully rubbed with a dry cloth to avoid the production of a well defined edge to the area which has been treated. An effort should be made to have it merge gradually into the surrounding fabric so as to be as nearly imperceptible as possible.

Where mineral acids have been employed on cotton or linen goods or on fabrics containing these fibers the



## Expert Formulas for Removing Stains

place must be sponged with a weak solution of sodium acetate, which produces the sodium salt of the mineral acid and liberates acetic acid, which is quite harmless. This treatment is safer than merely sponging with water, which does not always remove all traces of sulphuric acid. All inorganic agents employed in stain removal must be thoroughly removed by sponging with water, and in all cases care must be taken to prevent a mark being left at the edge of the area treated.

After the removal of the stain it is sometimes found that the color of the fabric has been faded somewhat in the area treated. In such cases the color may sometimes be revived by sponging with acetic acid. If this has no effect, the dried fabric may be carefully touched up with a suitable solution of color in benzene.

Some of the most effective agents to be used in removing stains follow. They are placed in alphabetical order according to the name of the stain to be removed.

**Acid Stains**—1. When acid has destroyed or changed the color of the fabric, ammonia should be applied to neutralize the acid. Chloroform should then be applied, and the original color will be restored.

2. Spots produced by hydrochloric or sulphuric acid can be removed by the application of concentrated ammonia.

3. Vinegar, sour wine, must, sour fruit stains may be removed from white goods by simple washing followed up by chlorine water if a fruit color accompanies the acid. Colored cottons, woollens and silks should be carefully moistened with dilute ammonia applied to the stained area with the finger-tip. In the case of delicate colors make some prepared chalk into a thin paste with water and apply to the spot.

4. Picric acid spots may be removed by rubbing them with a paste of lithium carbonate and water.

**Alkali Stains**—1. A mixture of acetic acid, diluted with a large quantity of water, will remove stains brought by soda, soap, lye, etc.

2. On white goods, simple washing in water. On dyed tissues of cotton and wool and on silk, weak nitric acid, poured drop by drop on the spot and then rubbed with the finger will remove the stain.

**Aniline Stains**—Sodium nitrate, 7 gr.; diluted sulphuric acid, 15 gr.; water, 1 oz. Let the mixture stand a day or two before using. Apply to the spot with a sponge, and rinse the goods with plenty of water.

**Blood Stains**—1. Mix common starch as for use in the laundry and lay on quite wet in a thick coat over the spot.

2. Apply freely a weak solution of

soda or potash. Then apply a solution of alum.

**Book Stains**—1. Finger marks—Apply a jelly of white or curd soap, then wash with a brush in cold water.

2. Grease spots—Put over the spot a piece of blotting paper and apply a hot iron, or apply French chalk; put a piece of paper over it and apply the iron.

3. Ink stains (marking, etc.)—Apply tincture of iodine. The silver in the ink forms silver iodide, which is removed by a weak solution of potassium cyanide (deadly poison).

4. Mud stains—Wash in cold water, then in dilute hydrochloric acid, and afterward in a weak solution of chloride of lime. Rinse and dry.

5. Water stains—Float the stained sheet in a bath of water in which alum has been boiled. Keep in the bath several hours, then remove and dry between clean blotting paper.

**Brickwork**—To remove mildew apply melted paraffine and work it in with a paint burner. This will also serve as a preventive.

**Broadcloth**—To remove stains grind fine 1½ oz. of pipeclay; mix with 18 drops of alcohol and the same amount of spirits of turpentine. Moisten a little of this mixture with alcohol and rub on the stains. When dry, rub off with a woolen cloth.

**Coffee, Tea and Milk Stains**—1. On woolen and mixed fabrics these stains are taken out by moistening with a mixture of 1 part of glycerine, 9 parts of water and ½ part of aqua ammonia. This mixture is applied to the goods by means of a brush and allowed to remain for 12 hours, occasionally renewing the moistening. After this time the stained pieces are pressed between cloth and then rubbed with a clean rag. Drying and, if possible, a little steaming will complete the removal of the stains.

2. On cotton and linen these stains may be removed by spreading the stained part over a basin and pouring clean, soft, boiling water through it. If the stains are not entirely removed, rub in a little powdered borax and pour on more boiling water; then place the article to soak. Do not allow soap to touch the fabric before the stains are removed, as the alkali in the soap will make the coloring matter turn into fast dyes.

3. On silk dyed with delicate colors or finely finished a mixture of 5 parts of glycerine, 5 parts of water and ¼ part of ammonia may be used. Before using it try the mixture on a part of the garment where it will not be noticed to see if it will change the color. If the color is impaired, no ammonia should be used. If, after drying, the part experimented upon retains its original color, the mixture should be

applied to the stain with a soft brush. After being allowed to remain on the spot for 6 or 8 hours, the mixture should be rubbed off with a clean cloth. Any part that has dried on the fabric may then be carefully scraped off with a knife. The area treated should then be brushed over with clean water, pressed between cloths and dried. If the stain is not then removed, a rubbing with dry bread will easily take it off. To restore the finish a thin solution of gum arabic may be brushed on, then dried and carefully ironed.

**Fruit and Wine Stains**—1. On white cotton goods these stains may be removed by subjecting to the fumes of burning sulphur, followed by washing in warm chlorine water.

2. Silks and colored cottons or woollens should be washed with tepid soapsuds containing ammonia. Silks should be rubbed gently.

3. First rub the spot on each side with hard soap and then spread on a thick mixture of starch and cold water. Rub this mixture of starch well into the spot and afterward expose it to the sun and air. If the stain has not disappeared at the end of 3 or 4 days, repeat the process.

4. From linen these stains may be quickly removed by dipping the stained parts into boiling milk. Keep the milk boiling until the stain disappears.

5. If the stain has not yet dried it may be removed by rinsing in cold water in which a few drops of aqua ammonia have been placed. Wine stains on white materials may be removed by rinsing in cold water and then applying locally a weak solution of chloride of lime. Following this rinse again in an abundance of water. Delicately colored goods may be treated with colorless vinegar of moderate strength to remove fruit stains.

6. Fruit or wine stains on table linen may be removed by moistening the spots with dilute sulphuric acid and then rubbing with an aqueous solution of sulphite or hyposulphite of soda in water.

7. Spread the stained part over a bowl or basin and pour boiling water through it; or rub on salts of lemon and pour boiling water through until the stain disappears.

**Grass Stains**—1. Wash the stained places in clean, cold, soft water, without soap, before the garment is otherwise wet.

2. Remove by ether, in which the coloring matter of grass—chlorophyll—is soluble.

**Hands**—1. Aniline stains—Wash with strong alcohol or, more effectual, wash with a little bleaching powder, then with alcohol.

2. Nitrate of silver stains—Paint the blackened parts with tincture of iodine and let it remain until the black becomes white. The skin will then be red, but by applying ammonia the iodine will be bleached, leaving white instead of black stains of nitrate of silver.

3. Nitric acid stains—Touch the stains with a solution of permanganate of potassium; wash, rinse in dilute hydrochloric acid, and wash again.

4. Ink stains—Use ammonia water, muriatic acid and plenty of water, alternately, assisted by pumice stone if necessary. For removing marking ink stains from the hands use iodine dissolved either with iodide of potassium or in alcohol followed by aqua ammonia.

**Ink and Iron Mold Stains**—1. Procure a hot dinner plate, lay the part



stained in the plate and moisten with hot water; then rub in salts of lemon with the bowl of a spoon until the stains disappear; then rinse in clean water and dry.

2. Dip the part in boiling water and rub it with crystals of oxalic acid; then soak in a weak solution of chloride of lime, approximately 1 oz. to 1 qt. of water. When the stain is removed, rinse in several waters.

3. Apply lemon juice. If this fails, try an aqueous solution of oxalic acid, 1 part, to 2 parts of water and rub well with a soft cloth. Or use a solution of chloride of tin, 1 part, to 3 parts of water; or pure dilute muriatic acid, 1 part, to 10 parts of water. Apply with a camel's hair brush and then wash in cold water. Where the colors of the fabric may be affected by the above agents moisten the spots with fresh milk and cover with fine salt. This should be done before washing. For delicate fabrics the stained portion may be dipped in melted tallow and then pressed for some time between layers of warm pipe clay.

4. Indelible ink—Stains made from nitrate of silver may be removed by moistening them with a brush dipped in a strong aqueous solution of cyanide of potassium and then well washing the fabric in water.

5. India ink—Some of this ink may be removed from clothing by sponging. No chemical means of removing it is known. To remove a blot from paper dip a camel's hair brush in water and rub over the blot, letting the water remain on a few seconds. Then make as dry as possible with blotting paper and rub with India rubber. If the blot is not entirely removed, repeat the operation.

6. Printers' ink—Put the stained parts of the fabric into a quantity of benzine, then use a fine, rather stiff, brush with fresh benzine. Dry and rub bright with warm water and curd soap. For removing from paper, place a thick pad of white blotting paper beneath the sheet of paper which is soiled; then apply sulphuric ether with cotton wool, gently rubbing. Finally apply white blotting paper to absorb the color. Continue the application of fresh ether and repeat until all stains disappear. Do this away from a light.

7. Red ink—Stains of red aniline ink may be removed by moistening the spot with strong alcohol acidulated with nitric acid. Unless the stain is produced by eosine, it disappears without difficulty. To erase writing make a solution of 7 parts of sodium nitrate and 15 parts of dilute sulphuric acid in 500 parts of water; apply to the spot of writing to be erased with a camel's hair brush and rinse carefully.

**Knives**—To remove stains from knives cut a solid potato in two, dip one of the pieces in brick dust and rub the blade with it.

**Mildew**—1. Moisten hypochlorite of alumina with water, rub well into the cloth, moisten again with diluted sulphuric acid, 1 part to 20 parts of water, and after half an hour rinse thoroughly in soft water and then in water containing about 1 oz. to the gallon of sulphite or hyposulphite of soda. The hypochlorite may be applied with a stiff brush.

2. Cotton goods—If the goods are colored, soak for 24 hours or more in sour milk or buttermilk, then rinse in water and wash in strong soapsuds. If the goods are white, moisten the spots repeatedly with Javelle water diluted with volumes of water; rinse well, then wash in



## Money Saving Cleaning Secrets

strong soapsuds, not too hot. Another method is to mix well together 1 spoonful of table salt, 2 spoonfuls of soft soap, 2 spoonfuls of powdered starch and the juice of a lemon. Lay this mixture on both sides of the stain with a painter's brush and then lay the article on the grass day and night, until the stain disappears.

3. Linen—Take soap and rub it well. Then scrape some fine chalk and rub that also in the linen. Lay it on the grass; as it dries, wet it a little and the stain will come out at once. Another method of removing mildew from linen is to take two tablespoonfuls of soft soap and the juice of a lemon. Lay it on the spots with a brush on both sides of the linen. Let it lie a day or two until the stains disappear. A third way is to wash clean and take every particle of soap off; then put the linen into a tubful of clean, cold water; tie a small quantity of chloride of lime in a muslin bag, dissolve the lime in lukewarm water by squeezing the bag, then pour the water among the clothes. Stir and leave for 24 hours, but do not put too much lime in, as it will rot the clothes. Then rinse well in clean cold water.

5. Silk—Dip a piece of flannel into whisky and rub the mildew spots. Then iron on the wrong side, taking care to put a piece of damp cotton cloth between the iron and the silk, and iron on the cotton cloth, which will prevent the silk assuming a shiny, glazed appearance.

**Silk**—To remove grease spots, rub the spots on the silk lightly and rapidly with a clean, soft cotton rag dipped in chloroform, and the grease will immediately disappear without injuring the color of the silk. Repeat the operation if necessary. Be careful to rub the article rapidly and lightly, then finish with a clean, dry cloth. If these precautions are not taken, a slight stain is apt to be the result. Highly rectified benzine will also immediately remove grease from the most delicate colored silks.

### Tar, Pitch, Axle Grease, Etc.

1. White goods: Moisten the goods, wipe the spots with a sponge dipped in oil of turpentine cover them with filter paper, and pass a hot iron over them several times; finally wash the goods in warm soap water. Colored cotton and woolen goods: Moisten the goods, spread the spot with grease, soap it in thoroughly, allow the soap a few minutes to act and wash alternately in oil of turpentine and hot water. If this does not remove the stain cover the spot with the yolk of an egg that has been mixed with some oil of turpentine, and allow it to dry. Scratch off and wash it out thoroughly with hot water, then finally wash the goods in

water, to which some hydrochloric acid has been added, and rinse out thoroughly in clear water.

2. Make successive applications of spirits of turpentine, coal-tar naphtha and benzine. If the spots are old and hard it is well to soften them by rubbing them lightly with wool dipped in olive oil. The softened mass will then yield easily to the action of the other solvents. Resins, varnishes and sealing wax may be removed by warming and applying strong alcohol. Care must be taken in rubbing the material to remove the stains the friction shall be applied the way of the stuff.

3. On white goods soap and oil of turpentine, alternating with streams of water will remove these stains. For colored cottons and woolens rub in with lard, let lie, soap, let lie again, and treat alternately with oil of turpentine and water. For silks the same method may be used except that benzine should be employed instead of oil of turpentine. Freshly made tar stains can be removed by rubbing with lard and washing with soap and water.

**Nitric Acid Stains**—To remove from the skin or from brown or black woolen garments, moisten the spots for a while with permanganate of potash and rinsing with water. When removing from the skin, if a brownish stain remains, wash with an aqueous solution of sulphurous acid.

**Rust**—1. To remove from metal, cover the metal with sweet oil, well rubbed in, and allow to stand for 48 hours. Then smear again with oil applied freely with a feather or piece of cotton wool. After this rub with unslaked lime reduced to as fine a powder as possible.

2. Immerse the article to be cleaned for a few minutes in a solution of  $\frac{1}{2}$  oz. of potassium cyanide in a wineglassful of water. Take out and rub with a tooth brush dipped in a paste composed of potassium cyanide, castile soap, whiting and water mixed to the consistency of thick cream.

3. Dip in a solution of 1 part of dilute sulphuric acid to 10 parts of water. Wash in hot lime water and dry with sawdust.

4. Soak in kerosene. When the rust has been loosened in this manner it may be removed by rubbing.

**Rust Stains**—1. To remove from textiles, make a powder by mixing 2 parts of cream of tartar and 1 part of oxalic acid. Apply to the rust stains while the article is wet and then wash out in clear warm water.

2. Dissolve potassium binoxalate,

add glycerine, 10 parts and filter. Moisten the rust spots with this solution and let it stand for three hours, rubbing the moistened spots frequently. Then wash out well with water.

3. Soften the spots with a solution of 1 part of ferrocyanide of potassium, 500 parts of water and 1 part of concentrated sulphuric acid. Then wash out with soft water and remove the stains, which by this time will have become blue, with a solution of potash.

4. Soak the stains in a solution of tin chloride and rinse immediately with water, which should be used freely.

5. Salt mixed with a little lemon juice is often effective in removing iron stains. Salts of lemon mixed with water and rubbed over the mark will also usually remove a rust stain from cloth.

6. Throw on the stain a small quantity of dry powder of magnesia, rub it slightly with the finger and leave for an hour or two. Then brush it off.

7. To remove rust stains from delicate materials, rub the spots with moistened cream of tartar. If the fabric is white a concentrated aqueous solution of oxalic acid may be used.

**Wickerwork**—To clean, make a solution of 1 part of chloride of lime with 20 parts of water. Mix well, then let stand and run off the clear liquid into a wooden tub. Soak the articles in this for half an hour. Remove them from this solution, then dip in hydrochloric acid and water, 1 part of the acid to 20 parts of water. Let remain for  $\frac{1}{4}$  hour, then wash in water and let dry in a cool, shady place.

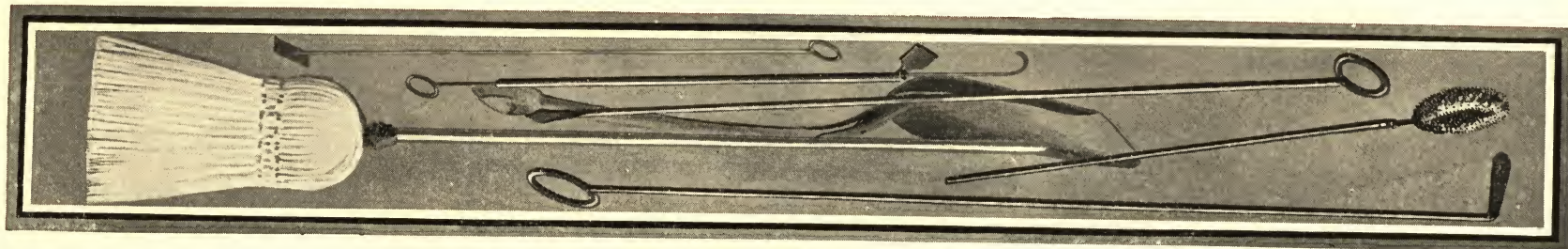
**Wood**—1. To remove heat stains from polished wood, fold a sheet of blotting paper to make four thicknesses of the paper, cover the place with it and put a hot smoothing iron thereon. Have at hand some bits of flannel also folded and made hot. When the iron has made the surface of the wood hot remove the paper and go over the spot with a piece of paraffin, rubbing it hard enough to leave a coating of the paraffin. Then rub the injured surface with one of the hot pieces of flannel. Continue the rubbing, using freshly warmed cloths, until the whiteness leaves the varnish or polish. If necessary, repeat the process.

2. To remove spots on mahogany, take a little aquafortis diluted in water and rub on the part by means of a cork until the color is restored. Then wash with water, dry and polish as usual.

3. To clean and polish wood at the same time an encaustic may be made by a composition of wax, sal soda and soap. Shave the wax and soap and dissolve them in boiling water; stir frequently and add the soda. When the wax and soap are thoroughly dissolved place the mixture in a vessel which can be closely covered and stir constantly until cool. This mixture will also remove ink from polished surfaces and can be used in cleaning marbles, bricks and tiles in addition to furniture, floors or woodwork.

4. A polish for removing stains from wood may be made from alcohol, 98 per cent, 1 pt.; ground rosin,  $\frac{1}{2}$  oz.; gum shellac,  $\frac{1}{2}$  oz. 2 parts, in distilled water, 88 parts: After the rosin and shellac are mixed put in the alcohol and then mix in 1 pt. of linseed oil.





# Heating and Ventilating

By JOSEPH HARRINGTON

*Inventor of the Harrington and L Type Green Stokers, and Combustion Engineer for the Mitchell & Dillon Coal Company, Chicago, Ill.*

2. Steam .....	85	85	90	80
3. Hot water.....	100	75	100	100
4. Vapor steam.....	90	75	90	100

Figuring Radiation Required

A RULE in common use for figuring the amount of radiation is

ONE of the essential features in house designing is the proper selection, location and operation of the heating plant. The farther north we go the more essential does the correct answer of these problems become and there is scarcely any household feature that can give the owner much more discomfort than an improperly designed heating plant. It is well worthy of the most careful thought of the prospective builder and of the present occupant who desires to improve existing conditions.

The first thing in designing the building is to provide for access to heating plant both from the outside and inside. The coal bin should have a window opening onto the drive or roadway so that coal can be delivered by the wagon load and emptied into the bin through the chute always carried by the delivery wagon. In many cases, if coal cannot thus be delivered an additional charge is made.

From the interior of the house the heating plant should be readily accessible without having to wend one's way across the entire basement or through such places as the laundry. There are occasions when frequent visits to the furnace room must be paid and some thought to this must be given. In all cases the head room in the basement should be sufficient to provide a decided slope to the hot air or hot water pipes. In both cases, it should be a distinct slope upward away from the furnace. The greater height or elevation thus afforded effects very materially the speed with which one can heat the house and the efficiency of the entire system. For maximum convenience, the furnace should be close to the coal bin but it is of greater importance to have the furnace so located that best circulation for heating air and hot water may be obtained. In the event that some distance separates the furnace and the coal bin a convenient thing is to have a push car or truck equipped with wheels and large enough to hold a day's supply of coal. This truck can be filled daily and pushed to a convenient point alongside the furnace and may also be utilized for carrying the ashes from the furnace to the cellar door.

Types of Heating Plants

THE use of the old fashioned stove is becoming so infrequent in new buildings that but little space here need be given to it. In general the firing rules applicable to the hot air fur-



A Handy Coal Truck

nace apply to the stove. It should always be kept in repair. The grates should be in operating condition and the gas passages kept cleaned out. It is the most inexpensive heater and serves well when but one or two rooms have to be heated.

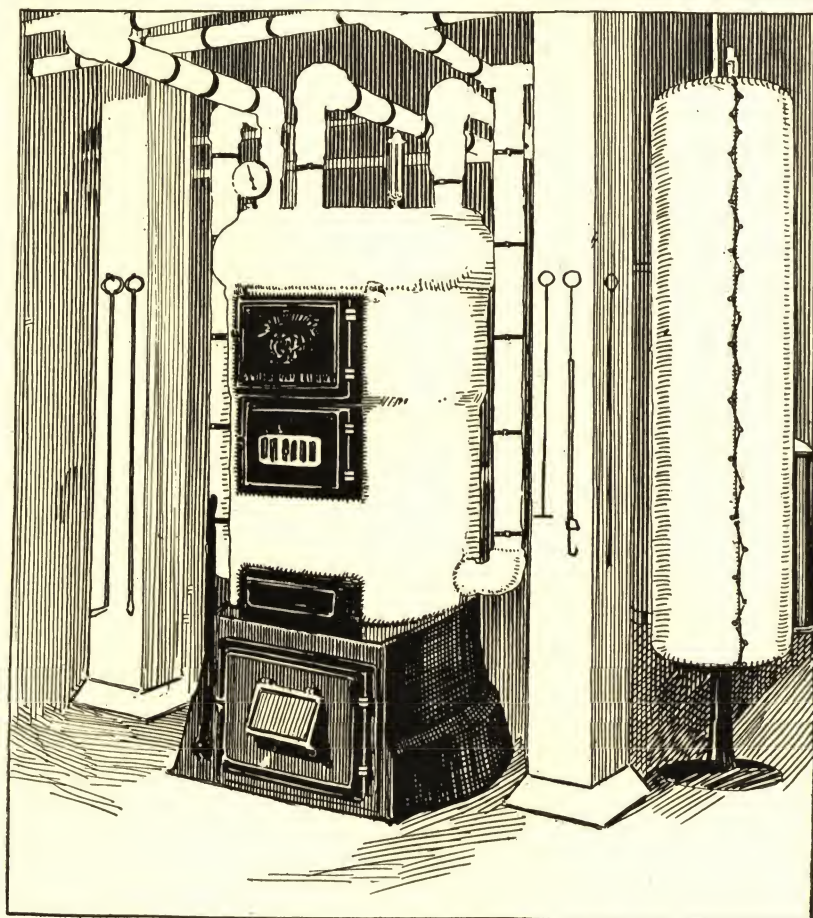
One of the most familiar types of heating equipment is the hot air furnace. A cast-iron fire pot is placed inside a sheet metal casing so arranged that a circulation of hot air will be produced which is discharged into the various rooms of the house through tin ducts built into the building walls. The hot air furnace is much cheaper than the steam system or hot water system and will respond very quickly to a demand for heat, and under proper care the hot air furnace will maintain a fairly uniform house temperature. It is most satisfactory for dwellings of eight rooms or less, but for larger houses more expensive systems utilizing hot water or steam are more successful. The greatest objection to the hot air furnace heating system is the difficulty of heating the windward side of the dwelling. In selecting a hot air furnace, one should be selected which has a shaking or dumping grate, a large ash pit and a brick lined firepot. It must be supplied with a draft damper in the ash pit door, a turn damper in the flue leading to the chimney, a check damper in the smoke connection between the furnace and the chimney and with a damper in the firing door. Another essential is a water pan or some other effective method of moistening the air (please refer to the special paragraphs on humidification found elsewhere in this article).

Steam heating boilers are more expensive than hot air systems, but less expensive than hot water, due principally to the fact that much less radiator heating surface is required. In this system a pound of coal burned per hour will provide heat for about thirty square feet of radiator heating surface. These boilers can be successfully regulated by pressure or temperature regulators.

Insulation of Pipes

ALL pipes in a hot water system should be covered with asbestos insulation as well as the boiler itself. This covering will conserve from 80 to 90 per cent of the heat, which would otherwise

radiate from bare surfaces. Hot water heaters are somewhat more expensive than steam heating systems because of the greater amount of ra-



Properly Insulated Pipes, Boiler and Hot Water Tank

diation required but keep the house at a more even temperature and keep the radiators at a temperature which will not cause a burn if touched. They respond more slowly to demands for increased temperature. They can be governed by thermostatic means. Such type of control is affected by the temperature of the air in the rooms.

Another and simple means of control is by means of a thermostat which is so placed as to be affected only by the variations in the temperature of the water in the system, or by the steam temperature. The owner decides what water temperature is necessary to maintain desired house temperature, sets the thermostat at the required point and it then automatically functions.

The comparative cost of installing and operating the chief types of residence heating systems, as shown by carefully made tests over a long period, 100 being taken as the maximum in each instance, is as follows:

System	Comparative Cost	Install	Operate	Durability	Comfort
1. Hot air .....	50	100	50	60	

that it is better to play safe and have a little too much than too little:

Divide the number of cubic feet of space within the room by 200; add to this the exposed wall area in sq. ft. divided by 10; add to this the area in sq. ft. of the windows divided by 2.

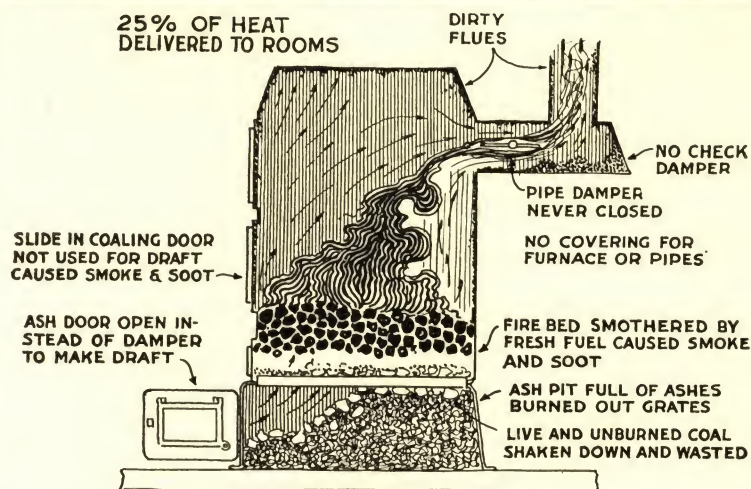
The result of the foregoing should be the sq. ft. of steam radiation required in the room. For rooms on the northwest side of the house it is customary to increase this by 10 per cent. If the house is subject to unusual conditions of exposure, the radiation should be increased.

For hot water the custom is to increase by 50 per cent the amount of radiator surface as figured for steam.

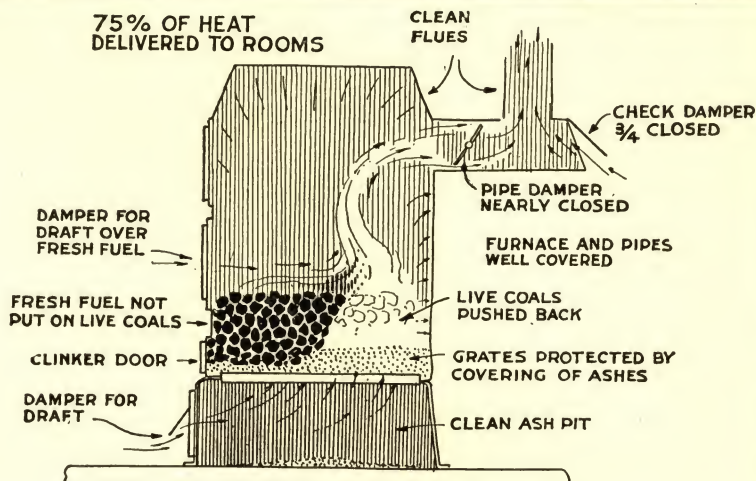
Fuels and Firing Methods

THERE are two general divisions of household fuel. Anthracite or hard coal, and bituminous or soft coal. In the hard coal class may be included coke, a fuel which is coming into more and more use and which is quite satisfactory when properly controlled. Hard coal is



25% OF HEAT  
DELIVERED TO ROOMS

WASTEFUL FIRING

75% OF HEAT  
DELIVERED TO ROOMS

EFFICIENT FIRING

named according to sizes as follows:

	Dimensions
Furnace	3 to 6 in.
Egg	2 to 3 in.
Stove	1 to 2 in.
Nut	1 in.
Pea	1/2 in.

Similar names are used in reference to coke.

Soft coal is divided into two classes: coking coal, originating along the Atlantic Seaboard or Eastern Kentucky, and free burning, or high volatile coal, originating in Illinois, Indiana, Ohio and Western Kentucky. These classifications are of interest to the householder because of their widely different action in the household fire.

One fuel which is receiving much attention at this time is oil—by which we mean either kerosene, familiar to all people, and fuel oil, which is extracted from crude petroleum and is made up of the less valuable ingredients of crude oil. It is a liquid and has to be injected into the furnace by special means. The advantages of this kind of fuel are the cleanliness, smokelessness and absence of coal and ash handling. It is also very readily controlled by automatic means so that a furnace thus equipped may be left to itself from one week's end to another, responding from the thermostat and keeping the house at a very uniform temperature. This fuel, however, performs best when used in conjunction with an especially designed boiler. The furnace gases must be broken up into the fine streams of small cross sections preferably running horizontally so that the maximum extraction of heat may occur.

#### Firing Efficiency

IN using anthracite coal, remember that at least 80 per cent of its heat is given off as radiant heat from glowing coal and it is best suited, therefore, to those furnaces having a large amount of heating surface exposed to the direct radiation from the fuel bed. The intensity of this radiation heat is in direct proportion to the temperature of the fuel, so that most efficient performance is obtained when the surface of the fuel bed is glowing brightly. In severe weather a relatively small amount of fuel should be used at any one time and successful performance has been obtained by covering only one-half of the surface at a time, leaving the other half in a state of high incandescence in order to maintain the furnace temperature

and activity of the boiler. Anthracite coal requires a well defined draft up through the fuel bed and but little or no air over the fire through the grid or damper in the fire door. The smaller sizes usually cannot be burned unless the chimney is high. These sizes pack rather tightly and require a stronger draft. As a rule, anthracite coal smaller than 1/2 inch in size is not particularly suitable.

The use of coke sometimes causes trouble on account of its relatively small ash content, which allows it to burn with a minimum of air and permits the hot fire coming into direct contact with the grates. It should, therefore, be burning with a layer of ash always on the grate surface and with a minimum of air. It responds very quickly to air and care must be used not to overheat the furnace.

The directions for burning coke can be condensed into five rules, as follows:

1. Carry a deep bed of fuel; a bed about 18 inches thick gives best results.
2. Use very little draft after the fire is started and keep it always under control.
3. Do not stir the fuel bed; clean the fire in the morning, if possible.
4. Use sized coke; 1/2 to 2 inches for furnaces, boilers and stoves; 3/4 to 4 inches for open grates.
5. Do not allow ashes to accumulate in ash pit.

#### Soft Coal Treatment

THE householder probably has more trouble in his attempt to burn soft coal, especially if he has a furnace adapted to hard coal and his experience has been always with the other types of fuel. Anthracite coal contains only about 10 per cent of combustible volatile matter, whereas soft coals average from 20 per cent in the coking varieties to 40 per cent in the free burning varieties. This volatile matter, or coal gas, is driven off at low temperature and if not burned in the furnace causes a very heavy heat loss and a sooting up of the heat surfaces which render them virtually ineffective. A few rules are, therefore, necessary when this fuel is used.

The first and most important thing to remember in burning soft coal is: Never entirely cover the fire bed with fresh coal, because the gases will be given off faster than they can be burned and smoke and soot will be the result. Allow some red coals to remain exposed so that the gases from the fresh coal will pass over the glowing coals and be burned. This prevents or reduces smoke and soot. Soft coal cannot be burned successfully if fired the same as hard coal. If you see smoke

or smell gas escaping from a heater, wrong methods are being used.

Other methods found to be an aid in getting the best results are:

**The Coking Method:** In fire box boilers push the live coal to the back part of the furnace, and then fill up the front part of the grate with fresh coal. Ignition then takes place gradually from the back toward the front, the fire spreading over the top of the coal and consuming the volatile matter, and reducing or preventing the formation of soot and smoke. When the volatile matter has been distilled from this fresh charge, it should in turn be pushed back and more fresh coal added in front as before.

Any form of fire box which permits alternate feeding of coal at one end and then at the other will greatly reduce the amount of soot formed; for instance in the kitchen range, if the live coals are at one end, and the fresh coals at the other end of the fire box, the combustion of the volatile matter will always be more complete than if the fresh coal is thrown upon the glowing coal.

For round, hot water, or steam heating boilers, and hot air furnaces, a modification of this same coking method can be used. Upon opening the fire door of a round furnace, one side of the fire will generally be lower than the other. This low side should be cleaned out nearly down to the grate, banking the live coal on the other side of the furnace. The low side of the furnace is then filled with fresh coal.

A level, even fire should be kept at all times, and holes should not be allowed to form in the fuel bed. The fire should not be raked or stirred excessively, and the poker should be used only when it is necessary to break or crack clinkers or any coke that may have formed.

**Air Supply:** To produce complete and smokeless combustion of bituminous coal, a sufficient amount of air must be supplied, and this air and the fuel must be intimately mixed. In general, an attempt is made to burn Illinois coal with an insufficient air supply over the fire, for if the volatile material distilled from the coal cannot burn as it is being given off, it is sure to foul the passageways and produce smoke. A large supply of air is needed immediately after the fresh fuel supply is added, and it is often advantageous to provide this air by leaving the fire door above the fuel bed open slightly after each firing.

If the volatile has been driven off and only live coals remain, the air supply over the top of the fuel bed can be cut down. This, of course, calls

for more attention than is the case with low volatile coals, and failure to give heed to it is one of the reasons why more smoke and a fouling of all surfaces result from the burning of high volatile coals. It is better to have too much air over the top of the fuel bed than too little.

It is not necessary to open the drafts in the ash pit as wide with high volatile as with low volatile coals, and the ash pit should be tight so that no air is admitted except through the draft door, and this should be adjusted for the smallest opening that will give good results. Generally not more than one-fourth of an inch opening will be needed at any time with a house heating boiler.

**Ash:** Middle West coals produce more ash than many eastern coals, and frequently this ash will fuse or clinker. To overcome this, keep the ash pit clean and do not have too thick a fuel bed, usually not more than 6 or 8 inches. If the ash pit door and draft are tight, an even fire bed can be kept with Illinois or Indiana coals with little trouble from clinker.

#### Economies

HEAT is radiated readily from both furnace and pipes and it is, therefore, desirable to have these properly covered with insulating material. Pipe covering lasts indefinitely and always maintains its efficiency unless wet or otherwise destroyed. It is an investment that no householder can afford to overlook. To give point to this statement, note the following table, which indicates the amount of coal wasted from pipe surface containing water at various temperatures. Whenever steam is carried in the pipes, the radiation loss is, of course, much greater.

The accompanying table shows the waste of coal per year due to uncovered furnace surfaces at various average temperatures of the water in a hot water plant. If the temperature carried were an average of 160 degrees, 12.03 square feet of uncovered surface would waste a ton of coal annually. The waste for other areas and temperatures is as follows:

Water temperature (Deg. F.)	Diff. between water temp. & surrounding air (Deg. F.)	Heat loss per sq. ft. per hr. (B. T. U.)	Waste of coal in lbs. per sq. ft. per year	No. sq. ft. of surface that wastes a ton of coal in 1 year.
1	2	3	4	5
100	30	56.6	49.6	40.3
120	50	97.5	85.4	23.4
140	70	142.	124.3	16.1
160	90	190.	166.3	12.03
180	100	242.	212.	9.44
200	130	298.5	261.5	7.65



Another prolific source of heat loss in domestic furnaces arises from the coating of soot on the heating surface of the boiler. It has been determined that an ordinary dirty surface covered with 1/16 of an inch of soot reduces the effectiveness of that surface as a heat absorber by 20 per cent. In how many furnaces do you find soot has accumulated to as much as half an inch in thickness? It is no wonder that you have to fire hard under these circumstances to keep the house warm.

It is a somewhat unusual operation, but distinctly a profitable one, to sift the ashes if they contain any appreciable amount of good coal. Closed ash sifters are on the market in which this process can be carried on without getting everything covered with dust. One of the rules of firing is not to shake the furnace so hard that live coals drop into the grate, but once in a while such is the case, and these should be recovered.

#### Why Soot Rots Pipes

REMEMBER that soot from soft coal contains a certain amount of sulphur dioxide, which when combined with water produces sulphuric acid. When the pipes are heated this does not occur, but during the summer months, when the basement is cool and the furnace gets damp, this soot will quickly affect the pipes. They should, therefore, be taken down every spring, thoroughly cleaned and put where they will not get wet. In this way the life of the smoke pipes will be lengthened many times. Another place where "a stitch in time saves nine" is in the matter of repairs. When the furnace is put out of commission in the spring it should be thoroughly overhauled, all soot removed and any burned or broken parts immediately repaired. It is a well demonstrated fact that furnace repairs are an economy.

You will be surprised at the amount of fuel you can save if you make your doors and windows tight by the use of weather strips or their equivalent. When the wind is just moderately strong, at, say, fifteen miles per hour, there will be sixteen cubic feet of air per minute get into the room around an ordinary window. When you figure the number of windows on the exposed side of an ordinary house, you can easily figure what a tremendous amount of excess air has to be heated under these conditions. The use of strips alone has frequently resulted in a 15 per cent coal saving.

Good, tight storm sash, especially if they are equipped with weather stripping, are especially effective.

Keep the air in your house moist. You will be healthier and burn less coal. Get a wet and dry bulb thermometer telling the relative humidity. The greater the humidity up to 70 per cent, the lower is the temperature required for comfort and the amount of coal required in keeping your house at 65 degrees, as compared to 70 degrees is only about 85 per cent.

#### Precautions

ANTHRACITE coal or coke can be stocked with perfect safety. With bituminous, however, certain precautions must be taken, of which the following are the most essential:

There should be no waste material left in the bin, such as old rags, oily waste, pieces of wood and the like. The bin should be thoroughly cleaned

and such matter removed before the coal is put in.

Bituminous coal should never be piled against a steam or hot water pipe or any other source of heat.

Bituminous coal should never be wet in the pile, but may be dampened slightly as required.

Never throw a red hot poker or similar firing tool where it can touch the coal pile.

Be careful when sweeping up hot ashes that the broom does not pick up a hot coal. You may start a serious fire under such circumstances, especially if you hang your broom on a hook

Be very careful that your smoke flue does not touch or come near any woodwork. Under these circumstances wood partitions and rafters get very dry and inflammable. Smoke pipes, if anywhere near woodwork, should be covered with asbestos covering.

After you have taken down and thoroughly cleaned your smoke pipe in the spring, give it a thorough coat of graphite paint both inside and out. Paint or calcimine your furnace room in some light color and then live up to this state of cleanliness. Have a full set of firing tools and provide pegs on which they may be hung at

to become full of scale. It would probably be a good economy to have this coil renewed anyway every two or three years.

When fine coal is used, dampen the coal slightly to prevent it sifting through the grates or drifting up the flue. Keep your house at a uniform temperature. It is much more economical than letting it get cold at night and then trying to catch up by firing hard in the morning.

#### Heat and Power of Future

AT some time in the future, soft coal will be coked at the mine mouth and converted into coke and gas. The gas will be burned to produce electric power which will be carried on high tension lines to manufacturing centers, or it will be piped to cities for both heating and cooking. The coke will be burned for power at the mine mouth, or for heating in cities. An idea of the saving which this will bring about is given in a publication of the Bureau of Mines, Department of the Interior, written by Henry Kreisinger and A. C. Fieldner. It says:

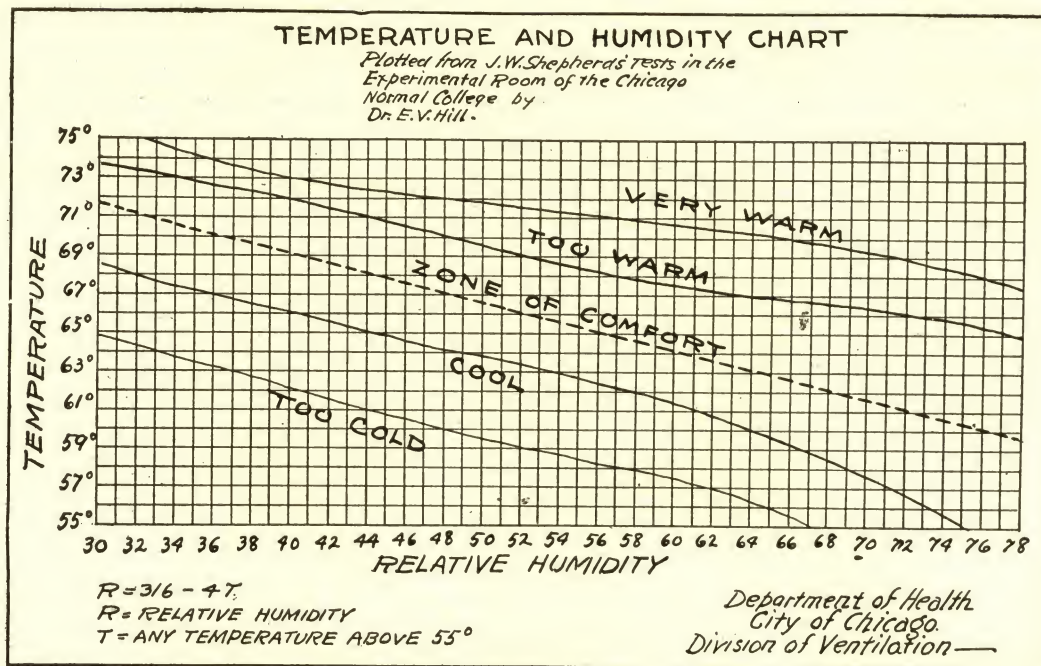
"When one ton of soft coal is coked in a by-product plant about 5,000 cubic feet of gas is made available for outside use. This gas is particularly well adapted for cooking, ironing and, where electricity is not available, light lighting. It is also a convenient fuel

to be used in small gas stoves, or even open grates late in the spring and early in the fall, when the weather is too warm to use the regular furnace and too cold for no fire. A small gas stove can be lighted readily and the room made comfortable for dressing in the morning and for retiring at night. Gas is particularly well adapted for water heaters and for bathroom heating. All these features add to the pleasures of life.

"The process of coking one ton of soft coal yields about three gallons of light oils suitable for motor fuel. At present prices the heat in the light oil has about twenty times the commercial value of the same amount of heat in the form of coal. When our mineral supply of oil is exhausted soft coal will be our chief source of motor fuel. The light oil recovered from coking soft coal now supplies part of the ever-increasing demand for motor fuel."

The following table will give you the number of cubic feet in a ton of coal of various kinds so that you can figure the size of your coal bin:

Kind of Coal.	Size.	Cu. Ft. per ton.
Pike Co., Ind.	1 1/4 in. Scgs.	37.6
Ayreshire, Ind.	No. 4 W Nut.	43.8
Indiana Block.	Block	46.5
Terre Haute, Ind. (5)	Mine Run.	40.6
Linton (4) Vein, Ind.	Mine Run.	37.5
Carterville, Ill.	Lump	41.8
Carterville	Egg	38.6
Carterville	No. 2 W Nut.	41.6
Carterville	No. 4 W Nut.	43.4
Carterville	No. 5 W Nut.	44.0
Carterville	1 1/2 in. Scgs.	36.4
Franklin County.	6 in. Lump.	41.8
Franklin County.	Large Egg	41.8
Franklin County.	Small Egg	46.3
Central Ill.	No. 4 W Nut.	44.6
Thayer, Ill.	Wash. Scgs.	39.9
So. Wilmington.	W. Nut & P.	40.9
Pocahontas	Mine Run	33.6
Pocahontas	Lump	37.5
Splint	Block	43.1
Hocking	Lump	39.8
Jackson, Ohio.	Lump	36.9
Ky. Dean Seam.	Lump	40.2
Harlan Co., Ky.	Lump	45.0
Scranton Anth.	Large Egg	35.0
Scranton Anth.	Small Egg	35.3
Scranton Anth.	Range	36.7
Scranton Anth.	Chestnut	34.8



against a wooden partition.

Be sure that the smoke pipe does not project into the chimney flue; otherwise it will cut off the draft and you will wonder what ails your furnace.

See that the base of the chimney is thoroughly cleaned every season.

a convenient point, keeping them there when not in use.

Cement up all joints or cracks around your furnace with a good stick iron cement. Have your hot water coil in the furnace attached to the circulating pipes by unions so that it can be readily changed, as it is liable

### Success with Soft Coal

SPECIFIC rules to be followed in burning soft coal in the different types of heaters are as follows:

#### Hot Air Furnaces

1. Have firebox gas-tight. All cracks must be cemented or a new section put in. Otherwise coal-gas will be carried to the rooms.
2. Regulate window of cold-air box so as to avoid too great a current of outside air, especially on very cold days.
3. Keep water container in air-jacket filled. Set jars of water near registers that send out most heat.
4. Hot-air pipes should pitch well upward from furnace, should be of sufficient diameter and should be wrapped with asbestos. A separate pipe for each room with a turn damper near furnace is a good rule. Label each pipe so that certain rooms can be shut off at furnace when desired.

#### Steam Heaters

1. Water in heater should be changed at least every spring and autumn. Draw a bucketful from bottom twice a week and replenish from supply pipe. Cleanliness of boiler is of prime importance.
2. Look at glass water gauge whenever you attend fire. Turn exhaust cocks above and below gauge occasionally to make sure openings to it from boiler are not clogged. Keep water gauge half full of water. More than half uses steam space. Less than half may damage heater.
3. If you have not good air valves, get the best at once. They are the worst source of trouble on steam heaters.
4. Boiler and cellar pipes should be asbestos covered.

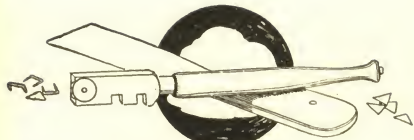
#### Hot Water Plants

1. Water should be emptied from plant and clean water put in at least every spring and autumn.
2. When first fire is built, as water gets heated, open air valve of each radiator, with key, until all air escapes and water flows. Repeat occasionally to make sure no air interferes with circulation of water.
3. Water should always show in glass gauge of expansion tank—usually located in top story of house above level of all radiators.
4. Have boiler and cellar pipes covered with asbestos.

#### Kitchen Ranges

1. A range needs little shaking. Clean ash pit daily to prevent damage to grates.
2. When fire is low, put on a little fresh coal and give it time to ignite before shaking. Don't poke the fire.
3. If lid must be removed to check fire, take off lid farthest from firebox. Never remove lid directly over fire.
4. Clean entire stove inside, frequently and thoroughly, particularly under oven and on top of oven.
5. Keep firebox full to oven top.
6. Keep kettle of water on stove, to make the air moist.





A Glazing Outfit

**E**VEN the best planned and most efficiently conducted home frequently gets out of order. If it is necessary to send for a carpenter, mechanic or upholsterer every time a chair arm becomes loose, a cushion spring breaks from its moorings or a screen door gets wobbly, either the repair bills will mount to staggering proportions in the course of a month or the needed repairs will be neglected until the home takes on a down-at-heels appearance.

The best and most economical solution is a well equipped home workshop. If there is a cement-floored, well-lighted basement this workshop is best located there. A well built carpenter's bench equipped with one or two vises, racks for chisels and drawers for other supplies will prove a good investment in most households. That shown in the illustration at the center of the page is a good type of such a bench.

If possible the work bench should be placed beneath a window so that it may get the maximum of natural light. An electric light socket should be placed in the ceiling above it so that it will be available for use at night. The bench should be removed as far as possible from the laundry, furnace and other activities in the basement so as to have plenty of space for work and for the storage of articles in process of repair.

A full equipment of tools with a place provided for each one is a first essential. Much time is apt to be wasted and tempers frayed if the required tool

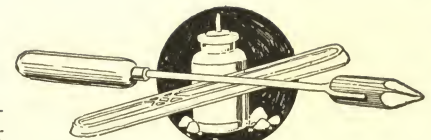
pasted on the ends of the boxes above the knobs to tell the size and nature of the article inside. A good type of nail box which may be carried from place to place where work is being done is shown on top of the cabinet in the illustration. This nail box has divisions in which assorted sizes of nails or screws needed for the work may be kept.

Another method of storing the supply of nails, screws and other small articles used in the home workshop is to have a series of shelves in a cabinet beside the bench. Rows of glass jars—mason jars may be used for the larger and jelly glasses for the smaller—can be arranged on these shelves. Each jar may be reserved for a special size of nail or screw and a label on the

mer, hatchet and small welding hammer will meet all ordinary needs for pounding instruments. The handsaws may be limited to a rip saw, a cross cut saw, a medium size keyhole saw, and a cabinet saw. A brace with a full set of bits will provide the boring equipment.

There should be a large box plane and a smaller metal one for the finer work. The equipment should include a half dozen different sizes of chisels and a large and small screwdriver. A pair of small tweezers and some larger pincers are often needed, while a monkey wrench, a larger pipe wrench and one of the pocket tool kits with the hollow handle in which the unused pieces are placed will all come in handy on many occasions.

Other tools which will aid the general repair man of the home include a glass cutter and putty knife for use in replacing windows, and solder and a soldering iron which will be useful



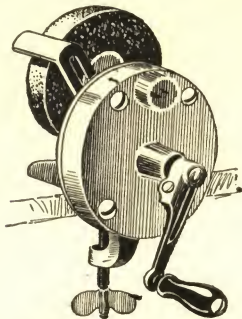
The Soldering Tools

tools sharp and the saw teeth properly set much time and effort will be saved. Better workmanship will also be possible, as saws will follow the lines more exactly and chisels will cut more smoothly.

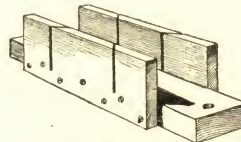
Other aids to good workmanship that should be included in the workshop equipment are following:

A marking gauge, to lay out lines along the grain of the wood. It consists of a beam, which is a stick about a foot long, with a sharp point or spur on one side near the end to make the mark, and a head or block which can be pushed along the stick. The head has a thumb screw on one side to hold it when it is in the desired position. The beam has inches and fractions of inches marked out on it measuring from the spur and the head should be set the distance along this measure that the line to be marked is to be placed from the edge of the wood. The head is then pressed closely against the side of the wood to be marked and the line is drawn by the point of the spur. In doing this the gauge should be pushed away from the person doing the marking and not toward him and the beam should be tilted so that its corner just touches the wood.

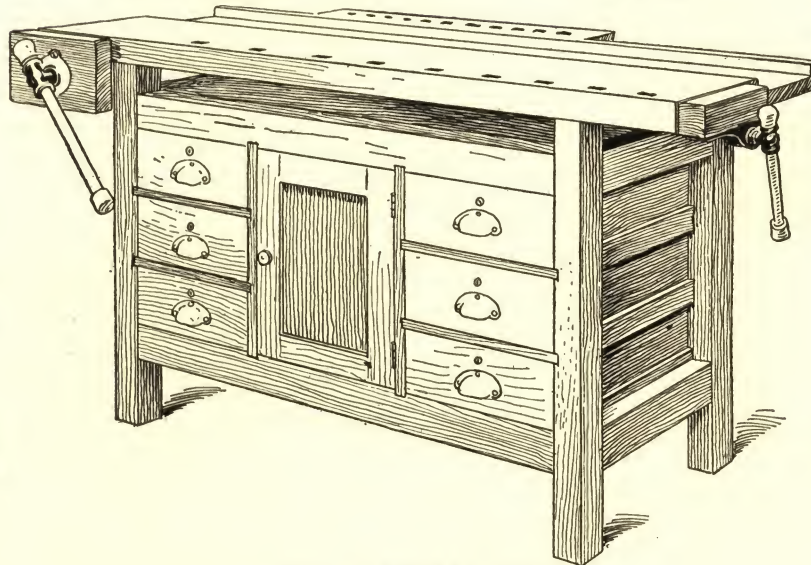
A trying square, to furnish a guide for marks by pencil or knife across the grain of the wood. This consists of a beam or thick piece of wood or metal in which the blade or thin piece is set at right angles. The edge of the



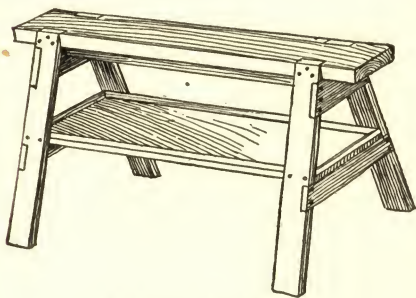
Sharpness Saves Time



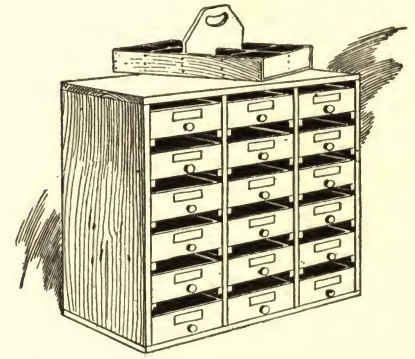
A Miter Box



A Bench Like This Is a Luxury



A Saw Horse Is Handy



Places for Everything

or the needed size of screw or nail is not at hand when desired. If it is necessary to go through a disordered heap of tools and materials to find the hammer, screwdriver or chisel needed for a given piece of work the home workman will accomplish much less than if every facility for his task is laid out in easy sight and reach.

For this reason the first task after the work bench is in place and a kit of tools secured should be the fitting of the home workshop itself. A tool box of the type shown at the bottom of the place will provide places for most of the essential working equipment. If cared for in this fashion the outfit of tools has the advantage of being easily portable so that outdoor repairs may be made without requiring repeated trips to the basement for additional tools.

A systematic arrangement of screws and nails is a great help to good work in carpentry and repairing. One neat and effective method, using a few pieces of plank and a number of cigar boxes as materials, is shown in the right hand column of this page. The planks are used as a casing and the cigar boxes, with the lids removed and a knob screwed into the end of each one, are used as drawers. Paper labels may be

outside will give its measurement or description.

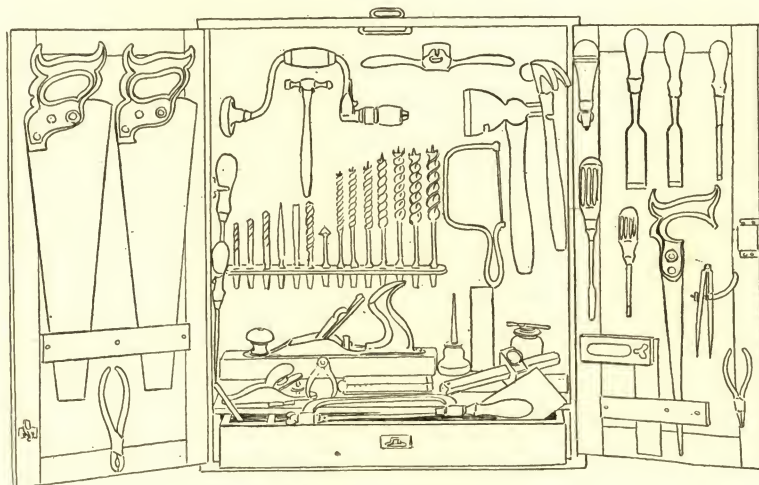
This method has the advantage of keeping everything in sight, so that the proper length nail can be selected by appearance as well as the description on the label. It also shows when the supply gets low so that it can be replenished.

The outfit for the home workshop need not be elaborate. A tack ham-

mer, hatchet and small welding hammer will meet all ordinary needs for repair cooking utensils.

In addition to the actual working tools there are a number of accessories which should be included. Among these are a small grindstone and a whetstone. A grindstone operated by a hand crank and geared so that it will revolve at a rapid rate is illustrated on this page.

By keeping the cutting edges of the



This Tool Equipment Will Save Its Cost

beam is laid snugly along the side of the wood and the blade furnishes a guide for a straight line at right angles to the edge.

Dividers, to describe circles and parts of circles or to locate points at given distances from other points. The dividers consist of two pointed arms hinged together at one end and with the movable arm sliding over a metal arc which measures the size of the angle between the arms.

Accurate rulers for measuring. Both a bench rule and a folding rule which may be opened to a length of several feet should be provided.

A bevel for measuring other than right angles. The bevel is like a try square in that it has a movable blade which is pivoted in the end of the beam and may be moved to any desired angle from zero to 180 degrees.

A pencil and knife for marking. If rough, heavy material is being used a pencil with heavy, thick lead should be used, but in finer work with smooth material a sharp pointed pencil with hard lead is advisable. The knife used for marking should be kept sharp with a good point at the end of the blade.

A miter box to cut wooden frames. This is a wooden box minus a top and the two ends with slits sawed in the



sides at the points necessary to guide the saw in cutting at the angle needed to make a joint. The wood used in making the frame is then placed in the bottom of the box, the saw is inserted in the slits and is moved back and forth until the wood is cut in two.

Hand clamps either of wood or metal which can be tightened or loosened against the edge of the bench to hold articles in place.

Saw horses to hold boards too long to be handled on top of the tool bench. A good type is shown in the illustration on this page.

A chisel board of hard wood to place under objects on which the chisels are being used to protect the top of the bench.

With an equipment such as has been indicated the householder will soon learn to do most of the common repair work about the home and may even launch out into the construction of some simpler pieces of furniture.

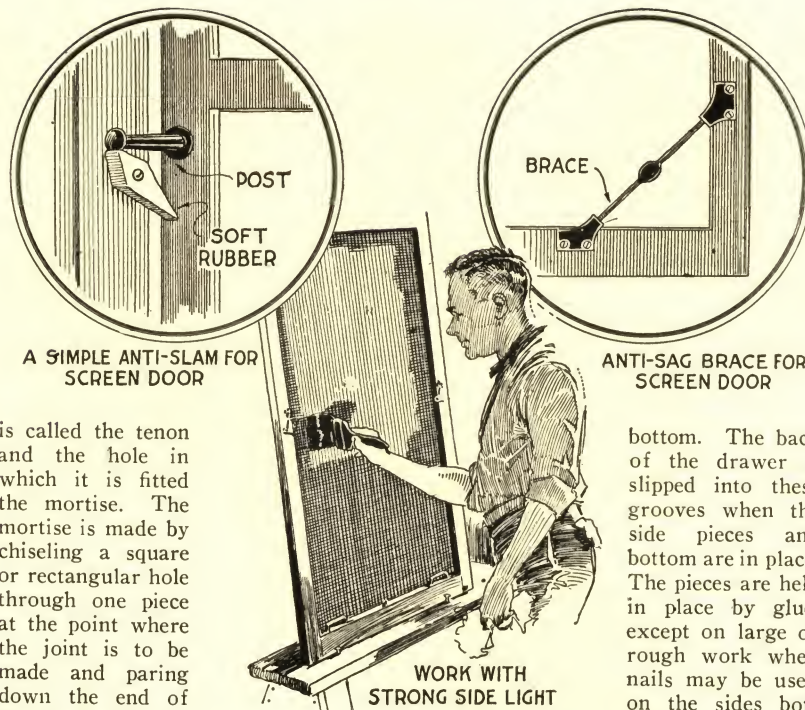
If he has had little practice or training before, he will find that he has much to learn about even that simplest of processes driving a nail. The first lesson he should learn if he is to be an efficient workman is to grasp the hammer near the end and take a full vigorous swing at the nail. The amateur nailer is apt to grasp the hammer handle in the middle and deliver short ineffective blows that do not drive the nail far enough to hold firmly for subsequent blows. The result is apt to be a bent nail or such a change in the direction of its point that it comes out the side of the wood instead of being driven firmly home.

#### Avoid Careless Starting

**C**ARELESS starting is another cause of many nailing troubles. If two boards are to be nailed together in a position where they are not easily held together one board should be laid on the bench and the nails driven through it until the points stick out a trifle on the other side. The boards should then be adjusted in their intended places and the nails driven home. If the nail starts to go in the wrong direction through careless hammering it is useless to attempt to change it by pounding on its side. This merely tends to bend the nail without affecting the point. It is better to draw it out and start over again. In drawing nails from wood a block of wood should be placed under the head of the hammer to avoid marring the wood and bending the nail. If the nail is long a second larger block should be substituted for the first after the nail has been drawn out some distance. In this way the hammer handle can be used as an effective lever and the nail can be easily drawn out without bending.

Screws may be used in joining wood where a solid and more permanent joint is desired than that provided by nails. Where two pieces of wood are to be joined by screws a hole slightly smaller than the shank of the screw should be bored in the top piece with a brace and bit. If the pieces are hard wood the bit which is the next size smaller than that used in the top piece should then be substituted and a hole driven some distance into the lower piece. If the wood is soft it is sufficient to have the hole through the top piece. Boring the hole before the screw is put in guards against splitting the wood and also makes the work of turning the screw much easier.

There are a wide variety of wood joints in furniture and cabinet work that require neither nails nor screws. One of the simplest of these methods is known as the mortise and tenon. By this means a projection from the end of one board is inserted in a slot or hole cut in the other. The projection



is called the tenon and the hole in which it is fitted the mortise. The mortise is made by chiseling a square or rectangular hole through one piece at the point where the joint is to be made and paring down the end of the other so that it will fit snugly into this hole. A keyed mortise and tenon joint is formed by allowing the tenon to project on the other side and making a hole in it through which a wooden wedge or key is driven to hold it firmly in place. This is often used in fastening the seat boards of a bench in the side. A blind mortise and tenon is one in which the mortise is not cut clear through.

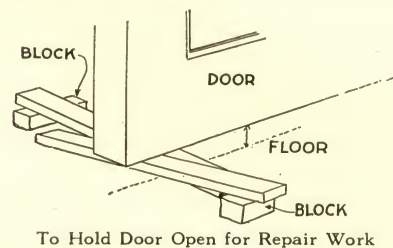
A common method of joining at corners which must stand considerable strain, such as boxes, is known as the dovetail. This uses the principle of the mortise and tenon except that the mortise is placed at the end of one of the pieces to be joined and is left open at the outside, so that the tenon can be slipped into it from the side. The tenons or pins are thicker at the end than at the shoulder connecting them with the main piece of wood, giving them a flare which resembles the tail of a dove from which the joint gets its name. The mortise slot into which the tenons are fitted must have sides cut sloping so that it is wider at the outside and narrower at the inside, to fit the flare of the tenons.

A joint of this kind, when well made and fastened with glue, is frequently

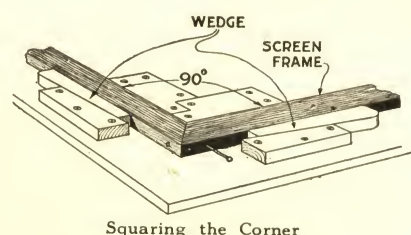
even more common use for frames of various sorts is the miter joint. This consists merely in cutting the ends of the boards to be joined to form two sides of a square or rectangular frame at angles of 45 degrees. By use of the miter box described on the preceding page this is a simple operation.

This joint must be nailed or screwed to hold the pieces together. The householder is likely to have much experience with this joint in repairing or making screen frames as it is commonly used in work of that sort. He would do well to prepare a nailing frame for these joints after the plan here illustrated. This device consists of a board on which a large block, or two blocks fitted together, with a corner that is a true 90 degrees, is screwed firmly in place. Near the edges of this board opposite the block two other blocks with the inside faces slightly sloping are screwed. The frame to be nailed is laid with the inside corner against 90 degree angle of the inside block, and wedges are driven tightly between the sloping faces of the outside blocks and the frame. The nails may then be driven into place without any danger that the frame will slip.

Another joint in



To Hold Door Open for Repair Work



Squaring the Corner

fully as strong as the main body of the wood.

The half blind dovetail joint is frequently used in the construction of drawers for cabinets and desks where the front is made of heavier hard wood conforming with the rest of the outside and the rest of the drawer is made of thinner soft wood. For this purpose the mortises in the front piece of the drawer are left open only at one side.

In making such a drawer a groove should be cut around the lower inside of the front piece and two side pieces of the drawer. This should be a distance equal to about twice the thickness of the bottom piece from the lower edges of the boards to be grooved. Other grooves, at the opposite end of the two side pieces from that cut for the dovetail joint, should be cut at right angles to the grooves provided for the

of the sort that can be bought at any hardware store is placed on the inside of the screen door frame. On the casing of the doorway at a point where its top will just engage the end of this post immediately before the door shuts a small block of soft rubber is screwed on with a single screw that is left loose enough to serve as a pivot. The lower part of this piece of rubber projects in a long point. The upper end is blunter and so less yielding. The bumper post engages this top just before the door slams and pushing it back turns the long lower point out to touch the advancing door frame and break the force with which it strikes the door frame. The amount of yielding at the point enables the head of the bumper post to advance over the top point of the rubber which comes to rest on the shank of the post. When the door is again opened the head of bumper post in moving out pulls the top around in position again for the next operation.

Screen doors, especially when they are in frequent use or where there are a number of children, have a tendency to sag after they have been in use for a time. A method of preventing this is shown in the illustration above at the right. This is a brace screwed to two sides of the frame and capable of being tightened by twisting the center piece. It aids in holding the sides firm by its position and if there is sagging or warping, later this can be remedied by tightening the brace.

The periodical painting of screens to keep them from rusting is another frequent task for the workshop. The top of the saw horse can be made into a convenient rest for the screens while being painted by driving a couple of nails in its top to prevent the screen from slipping and resting the top of the screen against the wall or a post. In painting screen wire there should be a strong light from the side so that if the paint has a tendency to cover over the mesh of the screen this may be seen at once and the paint thinned to correct it.

#### A Plane Is Necessary

**U**SE of a plane is frequently necessary for good results in home carpentry and cabinet work. The cutting edge of the plane should be kept sharp and for most work should be tightened so as to make a thin shaving in order to avoid producing a rough surface.

In finishing a rough piece of wood, one side should be planed smooth to serve as a "face." When all roughness has been removed it should be tested by laying a straight edge or the arm of the ell across the planed surface, and holding toward the light. When no light shows between the straight edge and the surface of the wood at any point the face will be completed. Laying one arm of the ell across the face just planed and the other over the end at one corner a line at right angles to the face should be marked across the end. A mark should be drawn across the opposite end at the corresponding corner in the same way and an edge of the board planed down to correspond to the lines so marked.

When this edge has been made true the marking gauge may be used to lay off the lines for the opposite edge at a uniform distance from the edge already planed. Using the ell, lines may be marked on the edges now planed near each corner and at right angles to the face to serve as guides in planing the two ends.

The next step is to plane the surface opposite the face. If care has been used in planing, surfaces will be smooth and corners will be true right angles.

Another device which the home repairman will find valuable in his work is shown in the illustration adjoining that of the screen frame is a means of holding a door open while repairing it and holder. This can be made by collecting three or four small lengths of studding or other odd bits of lumber. A wooden block is placed on either side of the door when it is held at the angle convenient for the work. A plank or length of studding is then laid on one of these blocks and pushed up until it engages a bottom corner of the door. The process is repeated on the other block with a second plank. Pressure in either direction on the door will then merely serve to wedge it more tightly into place.

A simple device for preventing a screen door from slamming may be put on as shown in the illustration at the top of the page. A bumping post



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# Color Is the Key to Good Interiors

COLOR is one of the three pass-words to the world beautiful," and we add that in the decoration of the home it is even more important than the other two—form and arrangement. Beautiful furniture, like a precious jewel or rare picture, must have significant and exquisite setting to be of value.

The background of the room, that is the ceiling, walls and floor must be in the right tone and color for the furnishings and appointments or the effectiveness of the whole is spoiled. The rule to be followed here is to keep the background subdued and plain so that the furnishings can be revealed against it and dominate the scheme for the room.

In considering the background, colors will always be less intense in hue or tone than those of the furnishings. In relation to each other too the ceiling, walls and floor should follow the order of light to dark. If the walls of the room are painted a cool receding gray, then the walls may be of cream or ivory tint or the lightest shade of gray and the rug mulberry or plain dark blue which with the lighter tone above helps to throw all the decorative scheme into its proper value and relief.

The amount of direct light in a room must influence the choice of tone for walls and ceiling. The ceiling acts as reflector, so if the effect desired is for more light the lighter the ceiling in tone the more satisfactory is the result and a rather dark interior may be illuminated in daytime by making the ceiling, walls and woodwork a creamy white with rather light floor coverings and with softly shaded artificial lights at night no glare is produced.

In the houses of today each room is related to the other rooms opening off in such a way that it is unwise from an artistic standpoint to treat any one room as a separate unit and it is in the backgrounds of walls and floors that the harmonious relation of the adjoining rooms is attained. Their color schemes, if not the same, must be harmonious, although if they are the same an impression is created of more space than there really is, which is many times of great advantage in small houses or apartments. It is necessary, therefore, in determining the color scheme of the living room to treat the background of the entrance hall or reception room opening into it on the one side and the dining room opening off on the other as a unit. For the same reason the treatment of walls and floor of the long hall in an apartment or the second floor hall of the two story house will depend largely upon the backgrounds of the various rooms opening into it so that no violent contrast or inharmonious color groupings will be created. The house will by no means be monotonous or dull because of such treatment, because the diversity and detail used in the design and color for the particular room will impart character and individuality to it.

## Rules on Color Are Flexible

THE rules governing the application of color are flexible enough to allow for the arranging of a room to suit almost any taste. If one person prefers walls done in heavy browns while another demands an ivory tan or cream gray the balanced color effect must be secured in each instance in a different way.

Colors having certain qualities in common are harmonious as (A) different tones of the same color; for

instance a shade and tint of blue (See monochromatic Harmony in color chart, page 59); (B)\*—Related colors, colors lying next in the color scale to the one chosen are harmonious. Between red and yellow the related colors are red-orange, orange and yellow-orange; between yellow and blue are yellow-green, green and blue-green; and between blue and red are blue-violet, violet and red-violet. (C)—Complementary colors are also harmonious; red is the complement of green; yellow of violet; blue of orange; red-orange of blue-green, etc.

The A. B. C. of color harmony just stated is of fundamental use to the interior decorator but equally as important is the knowledge of the effect on people of the various colors; that blue

refreshing and a most successful color in house decoration. Soft subdued colors that are best to live with are obtained by mixing the primary colors, red, yellow and blue as each one takes away from the glare or intensity of the other, resulting in the pleasing background colors of buffs, grays, tans and the softer tones of green, brown and yellow. Since one of the problems to be solved by the home decorator is not only the toning of background and decorative colors to each other but also the harmonizing of these with the red of mahogany, the brown of the walnut, or the weathered stains of the oak it will be found that the soft colors made up of the three primaries will harmonize with each of these in turn.



## Finishing the Woodwork

THE woodwork or trim should conform to the color scheme of the walls and may be the same color or slightly darker and whether painted or stained should never present a highly polished and varnished surface which reflects and produces high lights.

Next to the treatment of the walls the treatment of the floor is the most important factor and here the question of harmony and contrast presents itself. The effect of the floor or the floor covering should be darker than the walls and a very shiny surface should not be produced. Rugs with closely related tones and subdued or plain colors will bind together the color of all the other furnishings. When the walls are covered with a variegated paper of a forceful character, a rug of

plain color is just the restraining note needed. On the other hand if one possesses a beautiful rug, plain walls, hangings and furniture coverings act as a negative background to accentuate its beauty. If the walls are covered with a tapestry full of softly blended tints, the floor covering by repeating and intensifying one of these tints adds just the harmonious touch needed.

Rugs with all over designs made up of large units or a number of rugs with many decided borders make a room appear smaller than plain rugs or floors. If a room is long and narrow, rugs should be placed with the long edges parallel to the narrow walls to make it seem wider. When several small rugs are to be used in a room they should be placed so that the edges are parallel to the walls and never in the center of the room where they tend to break up the floor space and give a cluttered effect.

The greatest difficulty in producing a harmonious whole in the ordinary room comes from having on hand a collection of furniture of many different styles, woods and colors. No matter with what patient thought and skill the walls and floors, the upholstering and the draperies have been worked out, if the various pieces that go to furnish the room are a haphazard collection of walnut, mahogany, oak and the result will fail to please.

When it is impossible to discard these relics that offend or to replace them gradually by purchasing other more desirable pieces they can be refinished many times so that they will harmonize at least in color with the wood that is to dominate. For the same reason that a unity of light or neutral tones has proved to be the best method of treating the various wall backgrounds of the house, developing the individual color scheme in hangings and appointments, so it is only possible to attain a unified effect by the same brown tones or the same mahogany finish emphasized in all the furniture of a room. Some wicker or reed, an overstuffed piece or a bit of lacquer may be introduced as seems best for a relief.

## Treatment of Furniture

IF the furniture is weathered oak, a truly pleasing effect may be secured by having some of the chairs upholstered in old blue, brocaded with pink roses; the walls, especially if the room has a south exposure and is flooded with sunshine, might well be plain dull blue with ceiling toning into gray; the portieres silver gray velour lined with old pink, and a rug, perhaps a Wilton, in dull blue with old pink center.

With the brown of walnut as the dominating wood, walls with subdued orange tone, hangings with deep russet brown with creamy whites and dull greens intermingled will make a harmonious setting. Mahogany, with white woodwork and colonial paper on the walls, calls for dull greens and blues, and bits of copper red may be introduced with happy results.

Sometimes it must necessarily be the woodwork of the room that determines the color scheme. Suppose the woodwork to be ivory-white enamel or brown mahogany; the rug will be effective in either a dark blue-green or in a dark mahogany brown, and the curtains are best in a creamy buff background, with orange flowers or figures and



touches of yellow-green and brown.

If we have a rather dark north room which we wish to flood with light yellow or yellow orange a room could be planned with the use of both white and violet, the complementary color of yellow, both of which are necessary to enhance the quality of yellow. The ceiling then could be the lightest tint of cream, walls ivory; woodwork white enamel, furniture ivory white enamel striped in lavender, rugs in lavender, white and black, with hangings and one or two ornaments in brilliant yellow. Or the curtains may be a cretonne with background of soft gray with yellow and black flowers.

#### Curtains and Drapes

**N**EXT to walls and floors in importance comes the hangings and draperies, for on the proper selection of color and material for curtains and other hangings depends in large measure the attractiveness and complete working out of the decorative plan. The curtains may be as gay as the color scheme will allow, for with the walls neutral and the floors in a low tone the brilliance of curtains and draperies shows to good advantage, and if plain materials are to be used, strong, bright colors in rose, rich blues, yellows, greens, mauves—the list is as many as there are clear satisfying colors—may be risked, especially when they are to be hidden with more sober overdrapes.

A balanced effect in color is secured when there is just enough of the contrasting tones to give the predominating color a feeling of support. As a general rule about 60 per cent of the color in a given room ought to belong to the predominating color and its related tones, and not more than 40 to the complementary color and its related tints and shades. Consideration must be given in estimating according to this rule for the differences in the intensities of the colors used. If the blue room is to have 40 per cent of the complementary color, orange, represented in it, this amount of orange may be intense and used over a relatively small surface or it may be reduced to cover proportionately more ground. The amount of color used is measured by the sense of feeling of red, yellow or blue the surface gives, and so in decorating a surface is less orange as it becomes a lighter or darker shade. This means that brown mahogany or walnut oak will give the same feeling of orange intensity as a very soft buff. Then a room with blue as its keynote may have walls and woodwork which really belong to the complementary orange side, reduced in intensity in proportion to the space over which it is spread so that a poorly lighted room may have buff walls in place of blue.

#### Choosing the Wall Paper

**T**HE wall primarily serves as a background for everything that is within the room and should be treated accordingly. Because it is to be only a background and not a striking decoration in itself which will detract from the purpose and beauty of the objects in the room, it should have the simplest possible treatment. Since a wall is flat, every wall decoration should look flat. There should be no realistic suggestion of light and shade. Representations of flowers or other subjects must not be realistic, but conventionalized, so as to represent a flat surface and thus be adapted to its



purpose of wall covering. Any design with figures far enough apart so that each individual figure draws attention to itself is decidedly unpleasing, and most designs of scrolls and flourishes are irritating and tiresome.

On the other hand, the best way

to avoid a too hard appearance in wall color is to use a broken treatment instead of one solid color, a fact which is undoubtedly responsible for the wide demand for figured wall papers. To secure texture so that the decorated wall will possess a certain amount of interest, enough

to take away the bare appearance and at the same time never cause the wall to detract from the pictures or furniture placed against it, calls for discrimination.

In the living room, where we wish to create a quiet, restful atmosphere, a plain paper is preferable; in a dining room, where there is a high wainscoting and no pictures, are to be hung a simple, conventional design, or a pleasing foliage pattern may be used. Halls, if they are small, should have the plain effects, as a figured paper invariably makes the room look smaller; but if the hall is comparatively large, with few furnishings, a good figured paper will add interest. In the bedroom the wall covering is largely a matter of personal taste, and whether it is left plain or covered with an attractive figured or striped design should be dependent upon whether the outline or balance of furniture to be placed against the wall will be destroyed by the figuration of the paper.

There are several rules about wall coverings that are well to keep in mind if one has to make the most of either a very small room or a very large one. Light colors make interiors which are small and cramped seem larger and airier, while dark colors will make large rooms look less bare; cool colors will also make a room appear larger, while warm colors will decrease the apparent size. To make a low room seem higher, introduce the moulding at the angle between wall and ceiling and leave the walls undivided horizontally; to make a high room seem lower, introduce a wainscoting or dado, separating the walls into two spaces horizontally, if possible giving the lower portion a darker color than the upper.

When mouldings or panels are used both horizontally and vertically, the relative proportions of the two should be pleasing; when they are placed equal horizontally and also equal vertically they are usually monotonous; but they must not be placed so unequal vertically that they seem to crowd one another. The proportion of two parts to three parts of the area vertically is in general the most pleasing.

Striped paper, that looks equally well with either plain or figured hangings, is suitable for many rooms, as it is especially desirable when a Colonial atmosphere is suggested by the furnishings and it lends dignity to a large room, particularly when wide stripes are used in subdued tones. Bedrooms with the popular white enameled furnishings and woodwork look particularly well with striped wall covering.

Stenciling may be used to good advantage on walls covered with plain papers if a simple pattern is chosen and repeated around the room as a narrow frieze. In stenciling heavy colors must not be used on a light background, as the contrast will be too striking, and too many things in the one room must not be stenciled or there will be a decidedly monotonous effect produced. A Chinese effect that is very pleasing may be obtained by covering the walls in a dull gold burlap and stenciling a frieze in black, orange and dull blue, using typically Chinese motifs for the decoration. Some of the most interesting and charming bedroom schemes can be worked out in English chintz papers, used with ivory woodwork with plain colored hangings.

Embossed leather and imitation fabric papers are apt to give the appearance of a restaurant and are rather showy and cheap.

### How Much Wall Paper Do You Need?

**I**N MAKING estimates of the amount of wall paper to purchase to cover rooms of various sizes the following table, showing the number of rolls needed to cover rooms of various sizes and the number of yards of border necessary, will be of value:

Size of Room	Height of Ceiling	Number of Doors	No. of Windows	Rolls of Paper	Yards of Border
7x9	8	1	1	6	11
7x9	9	1	1	7	11
7x9	10	1	1	8	11
7x9	12	1	1	10	11
8x10	8	1	1	7	12
8x10	9	1	1	8	12
8x10	10	1	1	9	12
8x10	12	1	1	11	12
9x11	8	1	1	8	14
9x11	9	1	1	10	14
9x11	10	1	1	11	14
9x11	12	1	1	13	14
10x12	8	1	1	9	15
10x12	9	1	1	10	15
10x12	10	1	1	11	15
10x12	12	1	1	13	15
11x12	8	2	2	8	16
11x12	9	2	2	9	16
11x12	10	2	2	10	16
11x12	12	2	2	13	16
12x13	8	2	2	8	17
12x13	9	2	2	10	17
12x13	10	2	2	11	17
12x13	12	2	2	14	17
12x15 or 13x14	8	2	2	10	18
12x15 or 13x14	9	2	2	11	18
12x15 or 13x14	10	2	2	12	18
12x15 or 13x14	12	2	2	15	18
13x15	8	2	2	10	19
13x15	9	2	2	11	19
13x15	10	2	2	13	19
13x15	12	2	2	16	19
14x16	9	2	2	12	20
14x16	10	2	2	14	20
14x16	12	2	2	17	20
14x18	9	2	2	13	22
14x18	10	2	2	15	22
14x18	12	2	2	19	22
15x16	10	2	2	15	21
15x17	12	2	2	19	22

Deduct one-half roll of paper for each ordinary door or window extra size 4x7 feet



## How to Hang Wall Paper

TO prepare a wall never before papered to receive wall paper, a thin coat of sizing should be first applied. A good size for this purpose may be made by soaking one pound of glue in just enough cold water to cover it for twelve hours and then adding twelve quarts of hot water and a tablespoonful of powdered alum.

All calcimine or whitewash should be washed off with a sponge and hot water before any sizing is applied to the walls. If the walls have been rough plastered they should be scraped with a block of wood to rub off the projecting grains of sand before the sizing is applied. If the walls are very rough, apply a thin paste when the sizing is dry and let the paste dry thoroughly before papering.

Before papering over a painted wall, apply a solution consisting of one part ammonia and six parts water. This will remove all grease and oil and produce a better adhesive surface for the paper. Board ceilings and walls should be covered with cheesecloth, which should be tacked at the edges and sized. This shrinks it tight to the wall. At the corners and around the casings the tacks should be placed about two inches from the edge and the ends of the cloth pasted down.

Care should be taken to have the walls and the baseboard and other casing thoroughly cleaned and well sized to prevent the paper from curling up at the edges.

A good work table for paper hanging may be made by laying two boards about eight feet long and one foot wide side by side, with the ends resting on tables or boxes. A platform for use in placing the ceiling paper may be made by laying a plank between two packing boxes which are big enough to bring the head about six inches from the ceiling. Two stepladders may also be used as support for this plank. The tools required are a large paste brush, a paperhangers' smoothing brush, a seam roller and a pair of shears. A clothes brush or whisk broom may be used in place of a smoothing brush, and a bed-caster will make a good substitute for the seam roller. The seam roller should not be used until the strip of paper has been in place for about ten minutes, so that the paste is partially dry, otherwise the paste will be pressed out at the edges, leaving white marks on the wall paper. The seam roller should not be used on embossed paper, as it will flatten and discolor the embossing.

The paste used in attaching the wall paper is a simple flour paste that may be made from the following recipe: Take two pounds of fine flour, put in a pail and stir in cold water until it forms a thick paste. Then take a tablespoonful of powdered alum and throw it in, mixing it well. When this is mixed, heat about six quarts of water to the boiling point and mix while hot until the whole is brought to about the consistency of a thick soup. Allow it to cool, when it is ready for use.

### Paper the Ceiling First

THE ceiling should always be papered first to avoid soiling the paper on the side walls. The length of the room should be measured, with an additional two inches at each end to lap down on the side walls. The ceiling paper should then be unrolled on the work-table and enough strips matched, and cut the required length to cover the ceiling.

The lengths so cut should then be turned face down on the table. The paste should then be applied.

Beginning at the left of the table, apply the paste evenly with the paste brush on the top strip of paper. After the paste has been applied to about half the length, fold the pasted part over toward the center, taking care not to crease it and to see that the sides are exactly even. Now apply the paste to the other half and fold that over toward the center.

As wall paper is made with an unprinted selvage edge, it is necessary to trim this off before it is put in place. It may be cut off with a pair of shears, using care to keep to the exact edge of the pattern.

and folded, get up on the raised platform with it, and if you have started in at the righthand corner of the room unfold the end to the right and let the other end, which is still folded, hang over a roll of paper held in the left hand. Commence at the corner of the ceiling at the right and press the strip of paper to the ceiling between the chalk line and the wall, allowing it to come down at least two inches on the wall both at the end and the side. Walking backward along the plank toward the center of the room, guide the paper with the right hand along the chalk line, at the same time pressing it to the ceiling with the flat of the hand and smoothing it with the smoothing brush or whisk



Some wall papers are made with a perforated selvage, which may be torn off in the same manner as a postage stamp from the sheet in which it is printed.

When the trimming is done the paperhanger is ready to apply the first strip of ceiling paper. As a guide in laying it straight a straight line should be drawn across the ceiling sixteen inches from the side wall. This may be done by driving a nail in the ceiling at each end of the room, carefully placing each nail sixteen inches from the side wall. A cord rubbed with chalk or charcoal should then be tied to these nails after being stretched until it is taut. Then grasp the cord in the center, pull it down and let it go. It will strike the ceiling and mark a line which will serve as a guide in hanging the paper.

Now take the first piece of ceiling paper, which has already been pasted

broom. Then unfold the rest of the strip and proceed as before until it is all in place.

### Finishing the Ceiling

THE last ceiling strip should be placed so that it projects two or three inches on the side wall.

With the ceiling papered, the side wall strips are next in order. The side wall strips should be cut from four to five inches longer than the space between the baseboard and the edge of the border which will be put in place later. The extra length is necessary for matching. After the first side wall strip has been cut the second should be laid on the work table alongside it and moved along until the patterns match. It should then be cut off the same as the first. The upper end of the wall paper will be uneven as it projects over the space allowed for the border. The lower end at the

baseboard should be cut off even. The best way to do this if shears are used is to spread the paper evenly to the baseboard, crease it with the back of the shears at the junction of the wall and baseboard and then lift it up and cut it along the crease. Then smooth it down with the smoothing brush or whiskbroom.

In papering the side wall it is best to have the step ladder or platform about twelve inches from the wall. It is better to start along the edge of a door which will serve as a guide in hanging the first strip straight. Take the length of paper that has been pasted and folded, mount the platform or ladder, unfold both ends so that the entire strip hangs perpendicularly. Holding the paper at both top corners lean forward, looking down along the edge, and when the paper is properly matched, making the pattern perfect where the two strips join, allow the paper to touch the wall, and smooth it down with a smoothing brush or whiskbroom.

To hang the border, which is the last portion put in place it should be cut in convenient lengths and then pasted and folded like the rest. One may commence near the corner, but not exactly in it, as it should overlap on the other wall at least four or five inches. If the ceiling is uneven a chalk line should be drawn even with its lowest point to serve as a guide for the top of the border. This will leave the ceiling paper exposed on the wall above the border in some places.

A gloss may be given any wall paper after it is on the wall by covering it with the following preparation: Dissolve 2 parts of borax and 2 parts of shellac in 24 parts of water and strain through a fine cloth. With a brush or a sponge apply this to the surface of the paper and when it is dry polish it to a high gloss with a soft brush.

Thus treated the paper may be washed without fear of removing colors or even smearing or blurring them. This is especially desirable in kitchens and bathrooms where vapor and water or smoke are likely to collect on the walls and ceilings and soil them.

Another wall covering material which gives satisfactory results is burlap. This may be obtained either in the natural color, a yellowish drab, or painted in various shades. If it is to be placed on a plastered wall both the wall and the burlap must be sized with a glue sizing. After the sizing is dry it is applied with paste like wall paper.

Burlap is especially effective on walls where there are paneling. The texture of the burlap harmonizes excellently with the woodwork of the paneling if care has been exercised in selecting the proper colors. The burlap may be printed with any wall paint, after it is in place, if it is desired to change the color.

In addition to the architectural requirements of the house is the exposure of the room. We must consider the amount of light the room receives when we plan for the painting of the woodwork and the papering of the walls.

The north room naturally demands a warm tone on its walls, but, as each color generally has a warm and cold tone, we are not restricted by any hard and fast rules. Thus a north room takes a warm, rich brown with a red or yellow tone in it; and a south room takes a brown towards the gray, which will be more of a putty color. In both rooms a brown color scheme can be worked out, so that if a living room is north and a brown room is the scheme desired, it may be had. In a north room if the walls already have a cold gray paper much can be done to add warmth.



## Color Harmony Applied in the Home

EVERY tint or shade one sees has its own individuality and its group of related colors and shades. To know the relationship any color has to its neighbors in the color wheel is to know what tones to put together to make a room, a picture, a piece of embroidery, a dress or one's own person appear to best advantage.

In the chromatic wheel there are three colors, red, yellow and blue, which are regarded as the primary colors because from them all colors are made. As a color becomes lighter the result is designated as a tint of that color. Pink is a tint of red; lavender of violet, etc. As a color is made darker it is called a shade of that color.

Combining these primary colors one produces the binary or secondary colors:

Red and yellow produce orange.

Red and blue give violet.

Yellow and blue give green.

These further combinations can be carried out:

Yellow and orange combined give yellow orange.

Red and orange combined give red orange.

Red and violet combined give red violet.



Blue and violet combined give blue violet.

Yellow and green combined give yellow green.

Blue and green combined give blue green.

These twelve colors then complete our circle.

Every color we know is some form of the colors shown around the edge of this circle. Perhaps the color is a simple tint or shade of one of these colors. Very often the color in question lies somewhere between two complementary colors upon the line which connects them. These in-between tones represent one of the principal colors to which some of its complement has been added. For example: Add a small amount of orange to its complement blue—the blue becomes slightly grayed. As more orange is added the blue will finally become a neutral gray. If orange is still added the result-

ant color will come over to the orange side and become a gray-orange, and so the process may be carried out with any two related colors until we have all the colors at our disposal required in decorative art.



A Dining Room in Gray

Here a Spanish atmosphere is felt. The strongest note is in the deep maroon of the carpet, carried up to the solid back chairs, which might be done in Spanish leather or tapestry.



Breakfast Room in Blue and Tan

The enameled furniture can be easily cleaned and cretonne curtains give the feeling of sunshine even on a gray day.





The Well Equipped Workshop Will Save Many Times Its Cost



## Painting and Calcimining

WE do not have to depend on papers alone for wall coverings. There are many wall tints and paints that can be used with charming effects. A wall may be covered with a smooth paint film which has the advantage of being easily washed and yet have a most pleasing visible texture. This is especially true in a painted wall treatment where a "broken" wall color is produced by using several colors in combination, but great care is necessary in combining the intense tones which are furnished for tinting colors.

If a coat of glazing liquid in one, two or more colors is applied over a foundation of a flat tone it affords a most pleasing and interesting effect for walls and ceiling and when a one-color glaze is used, this color may be blended off from dark at the floor to the merest suggestion of a tint at the ceiling, or worked out in a uniform tint over the whole wall. The blended treatment is very effective too in panel treatment.

A wide variety of ready mixed and prepared paints suitable for interior or exterior decorating may be found at any paint store. It is often found, however, that the precise tint to be used, or the shade desired for the ceiling when the wall color has been chosen, cannot be found.

This need not deter the householder determined to have a harmoniously decorated home. There are well defined principles of color combinations which he can follow in securing the precise tint or shade desired. For experiment small quantities of paints can be mixed and the result tried until the result sought is secured. Larger quantities of the same paints mixed in the same proportions can then be relied upon to produce the same colors.

In mixing paints the question of whether they are for indoor or outdoor use should be taken into account. For outdoor work boiled oil should be used as the principal ingredient for thinning the pigment. For indoor work use linseed oil, turpentine and a little drier. The best driers are ground litharge for dark and middle tints and sugar of lead for light colors. It should be remembered in mixing that the less oil used the less will be the gloss. For flat tones little or no oil should be used as the paint prepared for this purpose is ground in oil and any considerable addition would make a gloss.

In mixing different colored paints to produce the tint desired it is best to have the principal ingredient thick, and add to it the other paints thinner. The paints should be added in the order of the amount used, the shade of which the least is required being mixed in last.

In the list of color combinations here given the color first named is the chief ingredient, and the others are named in the order of the amount needed.

Thus in making French-gray, white is the principal ingredient. To this should be added first a smaller quantity of Prussian-blue and then a still smaller quantity of lake.

The principal compound colors, with the simple colors producing them are as follows:

BUFF—White, yellow, ocher, red  
CHESTNUT—Red, black, yellow  
CHOCOLATE—Raw umber, red, black  
CLARET—Red, umber, black  
COPPER—Red, yellow, black  
DOVE—White, vermillion, blue, yellow  
DRAB—White, yellow ocher, red, black  
FAWN—White, yellow, red  
FLESH—White, yellow ocher, vermillion  
FREESTONE—Red, black, yellow ocher, white  
FRENCH GRAY—White, Prussian blue, lake  
GRAY—White, lead, black  
GOLD—White, stone ocher, red  
GREEN BRONZE—Chrome, green, black, yellow

GREEN PEA—White, chrome green  
LEMON—White, chrome yellow  
LIMESTONE—White, yellow ocher, black, red  
OLIVE—Yellow, blue, black, white  
ORANGE—Yellow, red  
PEACH, White, vermillion  
PEARL—White, black, blue  
PINK—White, vermillion, lake  
PURPLE—Violet, red, white  
ROSE—White, madder, lake  
SANDSTONE—White, yellow ocher, black, red  
SNUFF—Yellow, Vandyke brown  
VIOLET—Red, blue white

### Secret of Stippling

SEVERAL methods of blending colors to give a pleasing variety to painted walls have been devised. One of these is stippling.

In stippling a flat tone foundation paint is first applied, in one or two

When a second stipple color is to be placed over the first the sponge should be washed out in gasoline and then rinsed in water, when it is again ready for use. If it is not to be used until the next day the sponge should be submerged in water. If it is to be put away for use at some later time it should be washed with laundry soap to prevent hardening.

Another method of stippling is by the use of a flat tone foundation paint which is covered by a glazing liquid tinted by means of oil stencil colors. The glazing liquid is colorless and transparent and when tinted and stippled on permits the color of the foundation paint to show through in places while it is concealed by a thicker layer of the tint at other points. This gives a rich, luminous depth of



coats as required, and allowed to dry. The first coat should be allowed to dry twenty-four hours before the second is applied, but the third or stipple coat may be put on the same day as the second if convenient.

Instead of a brush a sponge is used in applying the stipple coat, the object being to give a mottled appearance to the wall. For some effects a piece of old soft gingham or a piece of stiff wrapping paper crumpled in the hand may be used successfully. There is a wide field for originality and experiment in this work, the effects secured varying all the way from the texture of a piece of plain tapestry, to the blendings of shades found in some marbles.

If a sponge is used for stippling some of the stipple color should be poured out on a flat surface of board, cardboard or tin and the bottom of the sponge thoroughly covered with it. Rub the sponge lightly on a dry paper to remove any excess of the paint and then proceed to stipple the wall by tapping the sponge gently against it. The practiced stippler will soon acquire a swinging, somewhat rhythmic motion in this that will accomplish the irregular mottling and blending of tones that is sought. The right amount of paint on the sponge is important as the effect will be dauby if the sponge is too wet and uneven if it is too dry.

color that can be made to produce beautiful effects.

A texture effect may be obtained by stippling the glaze coat with a crumpled cloth held in the hand and tapped gently against the wet glaze as it is applied. Blending from a light tone at the top of a wall to a darker tone at the bottom also gives a pleasing result. To accomplish this the glazing liquid should be tinted to the tone desired for the lower wall. About one-third of this mixture should then be poured off and diluted with an equal amount of clear glazing liquid. The wall should be sized with clear glazing liquid. The lighter tint should then be brushed on, beginning at the ceiling angle and working down to three or four feet from the floor. The darker mixture should then be put on the lower part of the wall, blend-

ing it with the lighter tint by brushing back and forth around the place where the two join. The surface should then be stippled, starting at the ceiling and working down into the darker color.

### Calcimining Methods

A MEANS of wall decoration much less expensive than paints but still a great aid in making the home artistic and attractive is furnished by calcimine. This may be obtained in a variety of delicate and pleasing tints ready to apply with the addition of cold water.

The use of calcimine is especially advised on the walls of new houses, as there is bound to be more or less cracking of the plaster in the drying and settling of the new structure in the first two or three years. After these first years the calcimine can easily be washed off with water and a sponge, the cracks can be filled with plaster of paris and the walls can be painted with greater assurance that cracks will not speedily mar the painted surface.

A glue sizing must be applied to a plaster wall before the calcimine is put on. When this has dried the calcimine should be mixed in a large bucket and applied rapidly with a brush. A wide sweeping stroke with the brush well filled with the liquid calcimine should be used, as the object is to make a smooth surface in which the marks of the brush do not show. Amateur calciminers usually find it advisable to put on a second thinned coat to remove irregularities in the surface shown in the first coat.

Floors and any articles of furniture which cannot be removed from the room should be covered with canvas strips or sheets, as a certain amount of spattering of the calcimine cannot be avoided. The ceiling and border of the wall above the moulding should be calcimined first to avoid spotting the wall. If the woodwork is to be painted it should be done after the calcimining. If not, careful washing after the room has been calcimined will remove the spots.

Calcimine in a variety of tints and colors may be purchased, but additional colors and shades may be secured by mixing. The following suggestions with regard to calcimine coloring to be used in mixing various shades may be of value:

BLUE—A small quantity of Prussian blue will give a soft azure tint. Dark blue is never desirable.  
BROWN—Burnt umber.  
BUFF—Spruce or Indian yellow, 2 parts; burnt sienna, 1 part.  
GRAY—Raw umber, with a trifling amount of lampblack.  
LAVENDER—Make a light blue and tint it slightly with vermillion.  
LILAC—Add to the calcimine Prussian blue, 2 parts, and vermillion, 1 part. Stir the mixture thoroughly, taking care to avoid too high a color.

Care should be taken in mixing the above colors not to make them too vivid. They will always appear brighter when applied than they do in the calcimine pot, and this fact should be kept in mind when adding the coloring powders.

## Varnish, Stains and Wax

NEXT to paint, varnish is the most commonly used article in the home decorator's equipment. It is colorless and transparent, although in some varnishes coloring matter may be mixed with it to give different shades. Its main purpose is to give a hard, glossy and protective

surface to woodwork. It may be used alike whether the wood is left in its natural color, is stained or painted.

Like many good things, the use of varnish in a home may be overdone. Rooms with woodwork, floors and furniture all finished with high-



ly glossed varnish give an impression of hardness and shiny newness that is the reverse of restful. A certain amount of varnish, however, gives an air of cheerful brightness that is greatly to be desired.

In using varnish it should be remembered that it is in most cases a transparent surface coat. For that reason the surface to be varnished should be first carefully prepared. If there is any roughness it should be sandpapered until it is smooth. If it is to be left in its natural color a filler should be put on to fill in any cracks or porous spots in the wood. If some other shade than the natural wood is desired, a stain is applied. If the surface is to be painted it should be covered with the desired number of coats of paint before the varnish is applied.

When the surface dressing of filler, stain or paint is on and has fully dried, a coat of shellac should be applied. When this is dry the varnish should be brushed on and allowed to dry. A high polish may be obtained on the varnished surface by applying floor wax and rubbing it vigorously.

Most varnishes are injured by water or extreme heat, so that varnished table tops and other articles of furniture subject to such injury should be protected by mats and pads. There are now a number of extremely hard varnishes on the market, however, that are almost impervious to either heat or water. These are especially desirable as floor coatings, as they furnish a smooth and durable finish.

Wood floors in bathrooms and kitchens should be varnished if left uncovered, as they are more easily cleaned and more nearly waterproof with a varnished surface. Varnish should be used sparingly on floors in other rooms, however, as an abundance of glossy floor surface gives the floors too great a prominence in the decorative effect. Where natural wood or stained wood flooring is used, the softer effect of wax is much more pleasing than varnish.

To renew a floor or piece of furniture on which the varnish is worn or marred, liquid varnish remover, which may be obtained at any paint store, should be spread over the entire surface with a brush. This softens the varnish, which may then be scraped off with a putty knife or dull edged spatula. A sharp knife should not be used for this purpose, as there is danger of cutting into the wood and thus marring the smooth surface. After the varnish is removed the wood should be sandpapered until all of the former surface coat has been rubbed off. A coat of shellac followed when dry by the varnish may then be applied.

If a surface covered with old paint is to be varnished, the paint should be scraped and sandpapered off in the same manner as the old varnish coat. The article may then be shellaced and varnished.

#### Stains and Wax

**W**OOD stains differ from paint in that they are designed to sink into the wood, altering the color, but leaving the appearance of the natural wood surface. Thus beech, birch and other hard woods, which have grains somewhat similar to the rarer mahogany but are far different in color, may be used as satisfactory substitutes for the more expensive woods by the use of stains. Fumed oak effects used extensively in interior finishing are obtained by the use of stains. Various pine woods with prominent grains also

lend themselves well to staining.

By bringing out the grains of the wood in this manner a pleasing variety can be given to the interior decorations. The stain is applied easily in the same manner as paint, after which it can be given a polished surface either by the use of shellac and varnish or by wax.

Floors stained to the desired color and then waxed have a pleasing satiny finish that in many parts of the house is more effective than a varnished surface. The waxed surface is also more easily restored than varnish and so is more satisfactory where it will get hard use.

New floors which are to be waxed should be prepared in the same manner as if for varnish. They should be carefully scraped and sandpapered, after which the stain or filler should be brushed on. When this is dry the wax should be rubbed on with a cloth and polished with a wax polisher. The wax polisher is a rectangular brush which is heavily weighted and fitted into a handle that is double jointed at the junction

with the brush. It is thus possible to move the brush back and forth with a long swinging motion. The polisher should be rubbed across the grain of the flooring first to push the wax into the grain. It should then be swung with the grain to give the polish.

#### Linoleum Quite Decorative

**A**NOTHER agency for home decoration that should be taken into account is linoleum. It furnishes a hard, easily washed floor surface that may be obtained in almost any color or pattern that may be desired.

Solid colors, patterns and tiled or mottled effects may all be obtained by this means. Especially in an old house where the home decorator is forced to deal with soft wood floors the use of linoleum permits magic transformations, with perhaps a kitchen floor of gray-green granite, a bathroom of mosaic tile and a living room floor in plain dark tones that harmonize well with hangings and furnishings.



### Painting Old Furniture

**S**UN parlors, breakfast nooks and the need for bringing light and cheeriness into crowded city surroundings have given painted furniture a new vogue. In households that have had to put up with cheap, ugly furniture which may have been gathered at various times without regard to clashes of color and finish, a set of brushes and the paint pot often prove a godsend. It is almost beyond pardon, of course, to cover with paint any aged piece of furniture well built in hard wood that has seasoned with the years into a rich coloring. But such a piece will blend well into any color scheme for a room and does not furnish a problem for the decorator. The great advantage of paint and enamel for furniture is that it rejuvenates cheap or unsatisfactorily finished articles which take on a dilapidated appearance after a few years of use without acquiring the dignity of antiquity. It brings harmony where there was chaos before.

Take as an instance the small bedroom in a city house or apartment. It may have none too sunny an out-

look, and if it is furnished with chairs and table in dark finish and perhaps a brass bed a room could scarcely be made more dismal and uninviting. By a liberal supply of white or some other bright colored enamel the placing of bright colored cretonne curtains at the windows and a few other such brightening up touches it may be made into a bedroom that is both cheerful and artistic.

The brass bed may be enameled white if it is to be a white bedroom. If other light tints are to be used in remaking the room a soft pearl gray is effective. A flat tone paint which will serve as a first coat on the metal may be secured at any paint store. Two coats of this ground paint may be necessary, after which the enamel coat can be applied.

If the woodwork and furniture of the room has been varnished or painted it will be necessary to remove the old finish before applying the new. To do this varnish remover should be spread over the surface, and as soon as the varnish or

paint to be removed becomes soft it should be scraped off with a putty knife. If necessary, a second coat of the varnish remover should be applied.

After removing the old paint or varnish the surface of the wood should be cleaned at once with benzine, gasoline or wood alcohol. If not perfectly smooth, it should be rubbed with sandpaper. A flat tone first coat should then be applied. After it is dry it should be sandpapered lightly and the coat of enamel paint can then be put on. If desired, a design can be stenciled on afterward.

If the floors of the room have been painted they should first be cleaned thoroughly, and when free from grease and moisture two coats of floor paint should be applied. The first coat should be allowed to stand forty-eight hours, or until perfectly dry, before the next coat is applied. If they have not been painted before, three coats of floor paint will be necessary. It is usually necessary to sandpaper old unpainted floors before they are painted if best results are to be obtained. If very rough, they should be planed.

#### Hopeless Cases Are Reclaimed

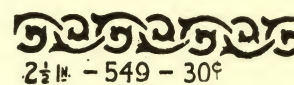
**I**T will be found that by a skillful use of paint the old furniture which may have seemed hopeless before may take on a new youth and charm. Even the uncompromising squareness and stolidity of mission furniture may be relieved by repainting. In one case an inharmoniously furnished living room which had several pieces of mission furniture in it was made attractive by painting the mission pieces black with border lines of yellow and red. The effect was aided, as is possible in any repainting plan, by the selection of hangings and fittings in harmony with the color scheme. Yellow velour was used for the seat pads and heavy hangings, thin yellow silk curtains were hung at the windows and the black woodwork was set off by Japanese gold paper.

In another house the severity of heavy furniture of the mission type was relieved by the liberal use of white enamel both for the furniture and woodwork. The dining table, buffet and chairs were repainted in white enamel, as were the woodwork. The beams of the ceiling were also painted white. The walls were painted a light blue, with darker blue hangings at the windows. A rug of the same dark blue as the window hangings was placed on the floor. From a room that appeared heavy, dark and forbidding this treatment transformed it into a light and airy dining place.

Paints especially prepared for various redecorating purposes are now easily obtained at most paint stores. One need only explain the result desired to be furnished with the materials desired, making it unnecessary to do any elaborate mixing, which is often a dangerous experiment for the amateur decorator.

While it will be necessary to remove paint and varnish from much of the woodwork and furniture in redecorating, this will not be found essential in producing a stained effect on old woodwork. If the wood has been previously finished natural and a darker stain is desired, many satisfactory effects can be obtained by applying one coat of stain. To get the best results in enamel finishes the wood should be thoroughly sanded after the previous finish has been removed.





Any of the Stencils Illustrated Will Be Supplied for the Price

## Stenciling Borders on Painted Walls

WHERE walls and ceilings have been done in solid colors, a border design which collects the principal colors of the room in some pleasing pattern gives the needed central point of interest in the decorative plan. These can be put on by means of stencils, which are perforated patterns placed against the wall and painted over, the perforations permitting the paint to touch the wall at the points necessary to carry out the pattern.

The pattern of stencil decoration to apply will depend on the general plan and character of the room, and the effect desired. A vividly colored border placed below the moulding in a high ceilinged room will make it appear lower, but if the ceilings of the rooms are already low it is better to make the border in more delicate tones, blending with the colors of wall and ceiling, so that it will not be so strongly accented.

In a paneled room the divisions of the wall may be pleasingly emphasized by placing a medallion design in each panel. This should be placed well above the center of the panel, preferably about one-third of the panel length from the top. In a room with beamed ceilings and a heavy cornice additional decoration may not be needed unless there is too great a contrast in color between the walls and the beaming of the ceiling. Where the walls are light and the ceiling is beamed with dark wood, a border design shading off and blending the two contrasted colors is needed to avoid too harsh a line at the top of the wall. Where the wall has been done in a stippled or mottled effect that contains some of the tones of the woodwork, the stencil border need not be so prominent. A border more delicate in tone or design is also called for in a small room where a feeling of greater space is desired.

A large design, or one in too brilliant colors, tends to emphasize the boundaries of a room and bring the walls nearer together, while one delicate in lines and tones gives an effect of greater distance. So important is the proper selection of stencil designs in making or marring

the appearance of a room that rules worked out through long experiment should be taken carefully into account by the home decorator. One good set of rules for stencil decorating, compiled by a prominent stencil maker, is as follows:

Rule 1.—Use of borders which will correspond to the proportion of the room. Smaller borders are necessary in the low ceilinged room, while the larger designs are required in public interiors where the ceilings are often from twelve to fifteen feet high.

Rule 2.—Select the character of the pattern which will conform to the character of the room, as for instance, employ the more conventional designs in those rooms which are constructed along the severe type, while the more floral patterns are suitable in those rooms where the other features give a suggestion of beauty of line.

Rule 3.—Do not use a simple stencil border in a room which is to be decorated and furnished in a most elaborate style, and vice versa, do not use an elaborate border in a simply decorated and furnished room.

Rule 4.—Do not attempt to introduce a stencil border when the wall is of such a character that a pattern will only detract from the appearance. This is true with the wall which is so much broken and cut up by window and door spaces, other

decoration. The distinctive marks of stencil decoration is furnished by the ties or strips which must run across the openings at intervals to hold the stencil together. These ties are utilized by skillful stencil makers as an effective part of their design. Representations of flowers and other natural objects must necessarily be conventionalized in stencil patterns to work in these ties which leave unpainted spots in the completed design.

In applying a stencil decoration, the stencil should be held flat against the surface to be decorated. If necessary, a few thumb tacks which will not injure the wall can be used to prevent the stencil from slipping. A stencil an inch and a half in diameter is best for general work. It

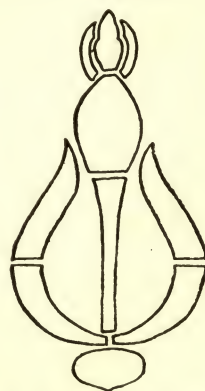


Fig. 3. Drawing With Poor Tie

should be dipped in the paint and then holding the brush up straight against the stencil the colors should be pushed through the openings of the stencil by rubbing it over them with a rotary scrubbing motion.

Stencil colors as they come from the tube are frequently too dark and intense for use. They should be thinned by the use of glazing liquids prepared especially for this purpose, as turpentine evaporates too quickly for the purpose, and oil gives the painted pattern too gloomy an appearance. Special care should be taken in stenciling to have the paint of the proper consistency. If it is too heavy to brush on easily the result will be spotty, and if it is too thin it is apt to run under the stencil and blur the design. Before a new stencil has been used several prints should be made on a piece of wrapping paper, as there is a tendency to "run under" in new stencils. Before starting to stencil always try out the brush on a board or paper to see that both brush and color are working right.

A border stencil carrying a uniform design around the room presents no great difficulty to the worker if the stencil is placed properly and held firmly in position. The border can be started at one corner and carried around the room. If the design centers about a few prominent features like medallions or large



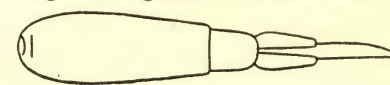
Fig. 4. Drawing With Good Tie

flowers, these should be placed so as to give a balance with doors, mantel places and other conspicuous features of the room. Apply stencil at the points where this part of the design should come, filling in any odd spaces with the leaf part or less important part of the design.

When a medallion stencil is used, with the design connected by a ribbon or binder, one method effective in many rooms is to pair the medallions in the corners, letting them come at regular intervals at other points in the walls.

In placing the design in the corners of the room the stencil must be bent. It is, therefore, generally desirable to leave the corners unfinished until the straight wall work is completed. Work as close to the corner as possible without bending the stencil. Then measure the length from guide to guide on the stencil and lay it off around the corner of the wall. Begin again on the straight wall at end of the omitted stencil length, proceeding as before at the next corner.

When the walls are all finished but the corners, the stencil must be bent. Measure off the first space left blank and measure it off on the stencil. Then, using a yard stick or other straight edge, bend the stencil up so that it will fit in the corner. The design may then be painted in at the first corner, when the stencil is again straightened and then bent at



Stencil Cutting Knife

the point required for the second corner.

When it is desired to have the pattern come out even at a certain point, lay off the remaining pattern on the wall when about six or eight stencil lengths distant. If the discrepancy is less than half a stencil length, the additional space can be made by repeating a few minor details of the design at points where the lengthening will not be noticed. If the discrepancy is more than half a stencil the design may be slightly crowded together by leaving out a short length of the detail each time.

The top edge of the stencil should be perfectly straight, running parallel with the center axis of the design,



Fig. 1. Drawing Without Ties



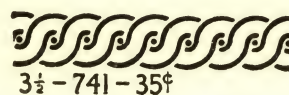
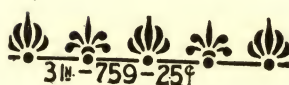
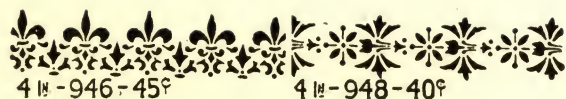
Fig. 2. Drawing With Ties

fixtures, etc., that unless the stencil is especially designed for the particular room, it cannot be used with any great amount of freedom. Panel work in some cases is advisable under such conditions, but special stencil patterns must be designed for this work.

Rule 5.—The color for the stencil has been mentioned previously. As a rule, stronger colors are best for small borders. For the larger border, colors which harmonize with the wall color to a greater extent, are desirable.

Stencil designing has a technique of its own and is most successful when it does not try to copy too closely the effect of free hand mural





Given by the Stencil Department, Woman's Weekly, 431 S. Dearborn St., Chicago

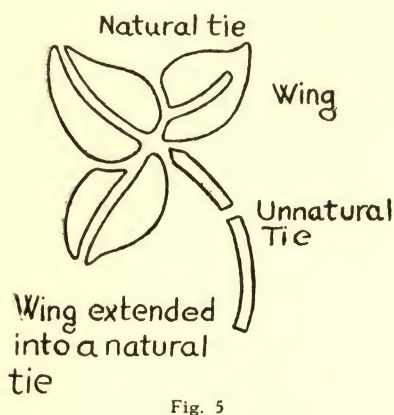


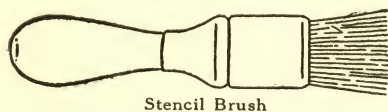
Fig. 5

Before starting work with a new stencil it is well to make sure that the top is true by placing it against a ruler. Where the border is placed under a moulding and it is desired to shorten the space between the top of the design and the moulding a section of the top of the stencil may be cut off. If it is desired to drop the design down farther a strip may be pasted on the top.

Two different types of stencils are commonly used in making wall borders. One of these is the block stencil and the other the outline stencil. The block stencil places the entire design on the wall by means of the stencil. Where several colors are used there are usually as many stencils as there are colors, each stencil providing openings for a certain color. In some cases two colors are applied from one stencil where the openings for the different colors are separated sufficiently to be brushed easily without blurring into the other color. Where the stencil pattern calls for two or more parts, guide marks are provided so the flowers register correctly with leaves and other connected portions of the design joined smoothly.

If the border is a flower design, pleasing results may be obtained by varying the color used. The roses may be changed from pink to red, to orange and to gray in different portions of the border.

The outline stencil marks the outline of the design of the wall, leaving certain parts to be filled in later by hand. The outline color is darker than the wall so that it still shows after the filling in has been completed. The color used for filling in is usually lighter than the outline.



Stencil Brush

When filling in several brushes should be placed in convenient reach so that the larger ones can be used for filling in the larger spots and the finer work.

#### Designing a Stencil

WHEN making a design for a stencil, the first drawing should be made quite regardless of ties (Fig. 1). The tie is the small strip of paper that holds the back-

ground together, or, in other words, the small strip of paper that separates the different parts of the cut-out design (Fig. 2).

After the first drawing is made, it should be gone over a second time, and the places where natural ties may be made should be marked. The design should then have all the parts that are intended to be cut out carefully filled with color or pencil. This will show if any wings of paper are left untied (Fig. 5).

A wing is a portion of the design that is attached at only one end, the other being loose and, therefore, easily moved in stenciling. If any wings are discovered, the design should be altered and the wing extended so as to connect with the opposite side of the cut-out space (Fig. 5), and thus prevent it from curling up and spoiling the stencil.

Tying is of great importance in a stencil design, and should be care-

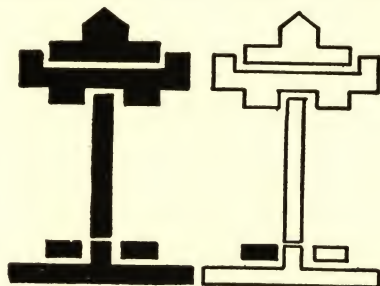


Fig. 6

fully considered. Ties should be made only when necessary to keep the parts of the stencil plate firmly in place. Poor or ungraceful ties may appear unavoidable, but by carefully studying the design, the detail can be slightly changed and a poor tie made into a good tie (Fig. 4) which will appear as necessary to the design as to the stencil plate.

It is not necessary for ties to always have parallel lines. The Japanese stencil cutters are very clever in using ties made of horse hair, human hair and fine silk threads. They fold or paste two sheets of thin, tough paper together at one edge; then they cut the stencil through both of the papers at the same time, using the knife in a vertical position. The top sheet is then folded back, and the under sheet is covered with a slow drying varnish, and the hair or silk is laid across the stencil sheet at right angles to each other and sufficiently close together to keep each part of the stencil in its proper position. The sheets are then closed together and put under a weight to dry.

The ties formed in this way are very strong and invisible in the finished work, as the brush naturally pushes them slightly to one side and the paint runs under them.

The beauty of stenciled work depends upon the beauty and simplicity of the design, a fine color harmony and the ability to apply the color in a flat tone.

Designs that are to be repeated many times should be very conventional. A continuous design, such as a border or surface pattern, may be

stenciled by using one unit if a small portion of the next unit is cut out to show where the following figure is to be placed. (Fig. 6.)

Background stencils are those which have the background cut out, and the design or pattern forms the stencil plate. Such designs are stenciled in one color and the design appears in the natural color of the material (Fig. 7).

Stencil paper is a prepared oiled paper from which stencils are cut. It is sold by the yard at art stores, paint stores and the department stores.

Any tough paper may be used if saturated in linseed oil and allowed to dry. This toughens the paper, makes it easier to cut and adds the water-proof quality that is necessary.

Another method is to coat the stencil paper with shellac varnish, which dries in a few minutes. After the stencil is cut a second coat of shellac may be applied for water-proofing and stiffening.

A stencil should always be laid flat when not in use.

#### Stencil Cutting

AFTER the design has been completed, it should be traced upon thin drawing paper or tracing paper. The stencil paper from which the stencil is to be made should be enough larger than the design to protect the material to be stenciled. When transferring designs to stencil paper, a sheet of carbon paper is



Fig. 7

placed face down between the tracing paper and the stencil paper. These papers should be secured to a drawing board with thumb tacks to prevent their becoming disarranged. Draw over the lines of the tracing with a hard pencil or any sharp-pointed instrument; use enough pressure in tracing to insure a very clear line upon the stencil paper.

Before commencing to cut the stencil, go over the design and fill in roughly all of the parts that are to be cut. This will prevent the mistake of cutting the wrong space.

The knife used in cutting a stencil must have a very sharp point, and this must be kept sharp through the whole process of cutting. If it is allowed to get dull, it will tear or drag the paper and thus spoil the clear-cut, sharp line necessary for a successful stencil.

The stencil paper should be laid on glass and held firmly with the left hand. The knife should be held at an angle of about 45 degrees with the paper, and the forefinger pressed constantly upon the back of the blade. The stencil knife is represented in Fig. 8. When cutting, the paper should be moved in such a way that the knife will always be drawn toward the cutter. The more the paper is moved in the cutting, the better the result will be.

The glass will blunt the knife. Have an oilstone at hand, use frequently, and this difficulty is soon overcome. A sharp knife is the secret of a good stencil.

In cutting straight lines, do not use a straight edge to guide the knife, but cut it freehand and it will harmonize better with the rest of the stencil.

It is best to stop cutting before coming to the end of a curved line; then turn the paper around and start cutting back. This will prevent cutting too far, and possibly destroying a tie.

When cutting small circles a punch may be used. When using the punch, place the stencil paper over a lead block, and strike the punch a smart blow with a hammer.

When there are many curves of the same size in the design, a carving tool or gauge may be used in the same manner as the punch.

When cutting a large stencil, commence by cutting all of the small details first. This work is more difficult when the adjacent large areas have been cut out first, on account of the weakness resulting from the cutting out of the large areas.

The stencil brush is of great importance and should be selected with care. The round stencil brush with a broad, flat end is used for the broader or coarser work. This brush is made of hog's hair. The bristles must be short and held very close together; if they are too long they can be shortened by tightly binding them around with adhesive tape. The ends of the stencil brush must be flat in order to use the stippling or light-pounding movement when applying the color (Fig. 9).

For the finer or more delicate work, the common bristle brush, such as artists use for oil-painting, may be used if the bristles are cut off short and the brush made flat on the end.

A soft or pointed brush is not satisfactory for stenciling.

Stenciling is becoming more popular every day. It is so effective for so many uses, and is really quite an inexpensive trimming, if one does not attach too great a value to his time. Not only walls, but curtains and pillows, are very attractive when stenciled. It is an art which is quite easily learned, too. There is scarcely a school in the country furnishing a complete art course which does not dwell particularly on the art of stenciling. If one is decidedly artistic, although it does not require a great amount of art, it is easy to design his own patterns, and furnishes pleasant pastime.



# The Romance of the Radiophone

*In Accomplishment It Eclipses the Wildest Dreams of Fanciful Fiction*

By LOUIS JAY HEATH

*Assistant Director of Educational Work, United States  
Public Health Service, in Charge of Radio Activities*

ONCE more the dreams of the most daring weavers of scientific romance sink into the background before the accomplishments of present-day inventive genius. In 1887, when Edward Bellamy in "Looking Backward" predicted radio, his picture of radio receiving, which today is a common scene in thousands of American homes, seemed but the fanciful flashings of a vivid imagination. Yet in less than thirty-five years engineers delving into the mysteries of electrical transmission have passed beyond the limits of Bellamy's imagination and realized as wild a dream as the boldest maker of fiction ever wove.

Three short years ago a man who told of picking from the air the musical notes of an opera or a concert

given hundreds of miles away would have been considered demented by a majority of the intelligent. Only here and there in laboratories and workshops the dreamers of radio broadcasting were pushing on. Then with the suddenness of a tropical storm radio burst upon the mind of the layman—of the man in the street.

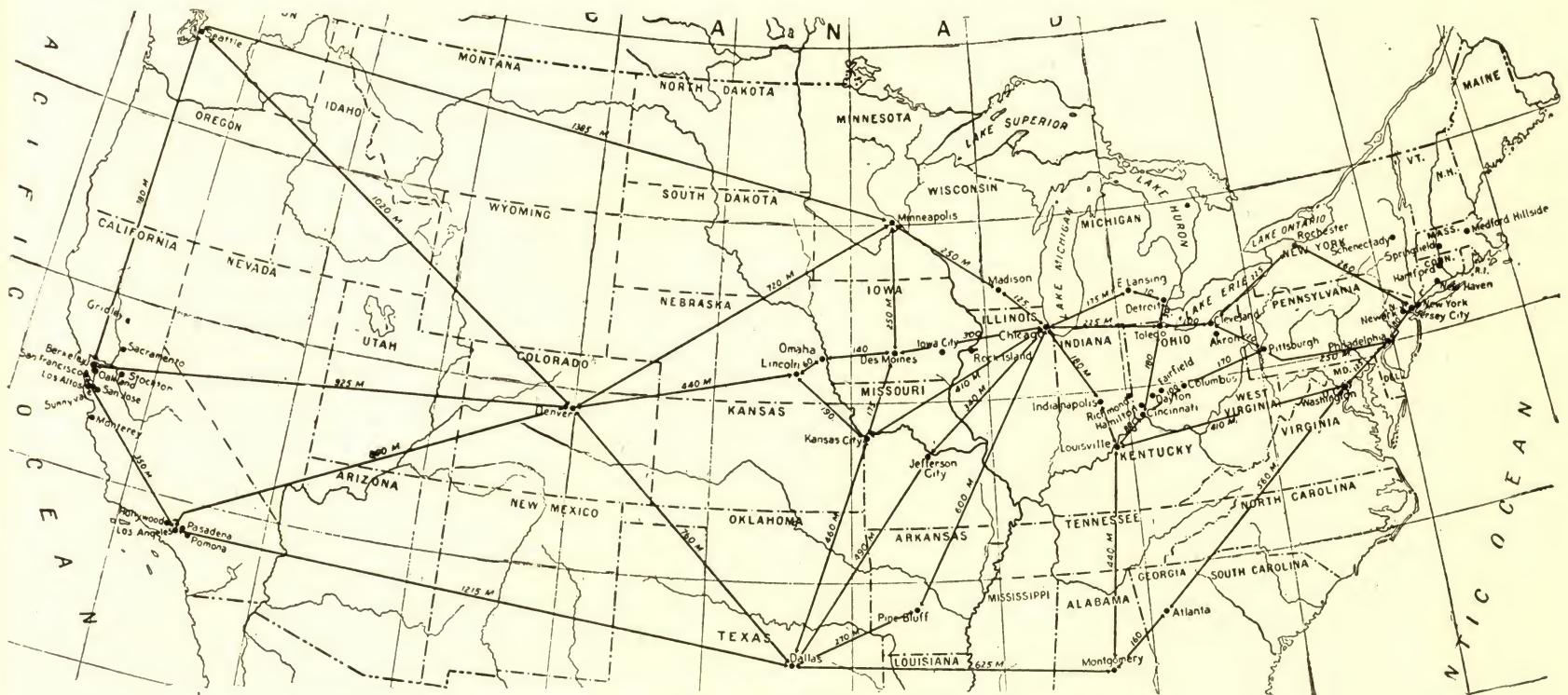
On June 1, 1922, according to the United States Department of Commerce, there were 301 licensed radio

telephone broadcasting stations in the United States. These are scattered over forty-one states. At the same time the National Radio Chamber of Commerce reported that a nationwide survey had been made of radio developments and that there were approximately one million five hundred thousand radio receiving sets already in use in American homes. So rapid is the development that figures become obsolete almost as soon as they are

written.

Think of the possibilities! One million five hundred thousand American homes equipped with radio receiving sets! In that number of homes families, friends and neighbors are gathering about innocent looking boxes and are listening in on concerts, operas and lectures given in cities hundreds of miles distant. The latest news and the best music can be secured daily by merely tuning in on the radio without leaving the easy chair in your own living room. Nor is this all. It is possible that within the next year the Federal Government in Washington will be conducting the largest broadcasting service in the world. The details of a nationwide experimental

*Continued on Page 68*



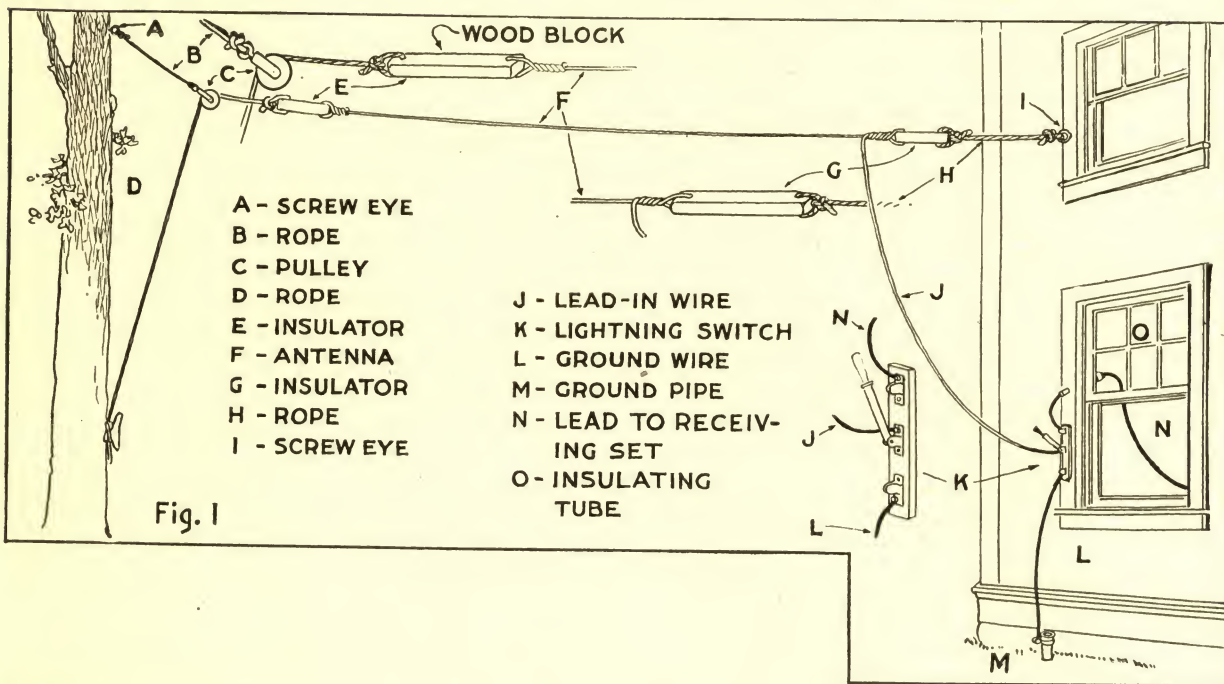
This Map Shows How Radio Broadcasting Stations Cover the United States

Wave Length		Wave Length	
WKH 360	Montgomery, Ala. .... Montgomery Light & Power Co.	9ARU 200	Louisville, Ky. .... Darrel A. Downard
WOK 360	Pine Bluff, Ark. .... Pine Bluff Co.	WGI 360	Medford Hillside, Mass. .... American Research & Radio Corp.
KFU 360	Berkeley, Cal. .... Maxwell Electric Co.	WBZ 360	Springfield, .... Westinghouse Elec. & Mfg. Co.
KFU 360	Gridley, .... The Precision Shop	WWJ 360-485	Detroit, Mich. .... The Detroit News
KGC 360	Hollywood, .... Electric Lighting & Supply Co.	WHW 485	East Lansing, Mich. .... Stuart Seeley
KLP 360	Los Altos, .... Colin B. Kennedy Co.	WLB 360	Minneapolis, Minn. .... University of Minnesota
KJS 360	Los Angeles, .... Bible Institute of Los Angeles	WOS 485	Jefferson City, Mo. .... Missouri State Marketing Bureau
KOG 360	Los Angeles, .... Western Radio Electric Co.	WOQ 360-485	Kansas City, Mo. .... Western Radio Co.
KQL 360	Los Angeles, .... Arno A. Kluge	9YY 360	Lincoln, Neb. .... University of Nebraska
KYJ 360	Los Angeles, .... Leo J. Meyberg	WOU 360-485	Omaha, Neb. .... Metropolitan Utilities District
KZC 360	Los Angeles, .... Western Radio Electric Co.	WOW 360	Omaha, Neb. .... R. B. Howell
DDV 360	Monterey, .... Noble Electric Works	WNO 360	Jersey City, N. J. .... Jersey Journal
KLS 360	Oakland, .... Warner Bros.	2AI 200	Jersey City, N. J. .... Jersey Review
KZM 360	Oakland, .... Hotel Oakland	WCR 360	Newark, N. J. .... L. Bamberger and Co.
KZY 360	Oakland, .... Atlantic Pacific Radio Sup. Co.	WJZ 360	Newark, N. J. .... Westinghouse Elec. & Mfg. Co.
KLB 360	Pasadena, .... J. J. Dunn Co.	WDT 360	New York City, N. Y. .... Ship Owners Radio Service
KGF 360	Pomona, .... Pomona Fixture and Wiring Co.	WJX 360	New York City, N. Y. .... DeForest Rad. T. & T. Co.
KVQ 360	Sacramento, .... J. C. Hobrecht (Sacramento Bee)	WYCB 1450	New York City, N. Y. .... Amateur Radio Reserve
AGI 360	San Francisco, .... Signal Corps Presidio	WHQ 360-485	Rochester, N. Y. .... Rochester Times Union
KDN 360	San Francisco, .... Leo J. Meyberg Co.	WGY 360	Schenectady, N. Y. .... General Electric Co.
KGB 360	San Francisco, .... E. C. Lorden	WRL 360	Schenectady, N. Y. .... Union College
KUO 360	San Francisco, .... Examiner Printing Co.	SUX 360	Akron, Ohio, .... Radioart Store
KYY 360	San Francisco, .... Radio Telephone Shop	WLW 360	Cincinnati, Ohio, .... Crosley Mfg. Co.
KQW 360	San Jose, .... Chas. D. Herrold	WMH 360-485	Cincinnati, Ohio, .... Precision Equip. Co.
KJQ 360	Stockton, .... C. O. Gould	WHK 360	Cleveland, Ohio, .... Warren R. Cox
KWG 360	Stockton, .... Portable Wireless Telephone Co.	8BYV 200	Columbus, Ohio, .... Electrical Specialty Co.
KJJ 360	Sunnyvale, .... The Radio Shop	8YO 275	Columbus, Ohio, .... Ohio State University
KIZ 360	Denver, Colo. .... Reynolds Radio Co.	WFO 360-485	Dayton, Ohio, .... Rike Kumler Co.
WQB 360	Hartford, Conn. .... C. D. Tuska Co.	WAI 360	Dayton, Ohio, .... U. S. Army
WCJ 360	New Haven, .... A. C. Gilbert Co.	WL2 360	Fairfield, Ohio, .... U. S. Army
WDM 360	Washington, D. C. .... Church of the Covenant	WRK 360	Hamilton, Ohio, .... Doron Bros. Electric Co.
WDW 360	Washington, D. C. .... Radio Constr. & Electric Co.	WHU 360	Toledo, Ohio, .... Wm. B. Duck Co.
WJH 360	Washington, D. C. .... White & Boyer	WJK 360	Toledo, Ohio, .... Service Radio Equip. Co.
WWX 1160-1980	Washington, D. C. .... P. O. Dept.	WSZ 360-485	Toledo, Ohio, .... Marshall-Gerken Co.
3YN 360	Washington, D. C. .... National Radio Inst.	WGL 360	Philadelphia, Pa. .... Thos. F. J. Hewlett
4CD 200-375	Atlanta, Ga. .... Carter Electric Co.	KDKA 360	Pittsburgh, Pa. .... Westinghouse Elec. & Mfg. Co.
KYW 360	Chicago, Ill. .... Westinghouse Elec. & Mfg. Co.	KQV 360	Pittsburgh, Pa. .... Doubleday Hill Elec. Co.
WBU 360	Chicago, Ill. .... City of Chicago	WRB 360	Pittsburgh, Pa. .... Newspaper Printing Co.
WOC 360-485	Rock Island, Ill. .... Karlowa Radio Co.	WRR 450	Dallas, Texas, .... Police & Fire Signal Dept.
WLK 360	Indianapolis, Ind. .... Hamilton Mfg. Co.	KFC 360	Seattle, Wash. .... Northern Elec. & Radio Co.
WOH 360	Indianapolis, Ind. .... Hatfield Electric Co.	KHQ 360	Seattle, Wash. .... Louis Wasmer
WOZ 360-485	Richmond, Ind. .... Palladium Printing Co.	KJR 360	Seattle, Wash. .... Vincent I. Kraft
WGF 360	Des Moines, .... Register Tribune	WHA 360-485	Madison, Wis. .... University of Wisconsin
9YA 360	Iowa City, .... University of Iowa		



# How to Make Your Own Radio Receiving Set

## I---The Crystal Set\*



NOT the least marvelous feature of radio is that simple apparatus for receiving radio telephonic messages can be made of odds and ends found about the house. A telephone receiver and a few other parts must be purchased, but an efficient crystal detector receiving set can easily be assembled at a cost as low as from \$6.00 to \$15.00. The set which can be built by following the directions given here should be capable of receiving messages sent from medium power transmitting stations with a radius of about fifty miles, provided these stations have wave lengths between 200 and 600 meters.

There are just five parts essential to any radio receiving station. They are the antenna, the lightning switch, ground connections, receiving set and phones.

1. The antenna is simply a wire suspended between two elevated points at least 30 feet above the ground and at least 75 feet apart.

3. The lightning switch. The ordinary porcelain base 30 ampere, single pole double throw battery switch may be used for this, the function being to connect the antenna directly to the ground when the receiving set is not in use, as a protection against electrical storms. In this way it serves somewhat as a lightning rod and is to some extent a protection to the house.

3. Ground connections. May be wire running to radiators or other large metal object. (See Figure 3.)

4. Receiving set. (See Figure 4.)

5. The "phones."

The receiving signals come into the receiving set through the antenna and ground connection. In the receiving set they are converted into an electric current which produces the sound in the phone.

The antenna should be erected outdoors as shown in Figure 1. No. 14 copper wire, either bare or insulated may be used. The diagram indicates a horizontal antenna, but it is not necessary to have it strictly horizontal, better results being ob-

tained when the far end is as high as possible. The important thing is to have the entire antenna 30 feet or more above the ground and the length at least 75 feet. The supports should be about 80 feet apart to provide space for insulators and the attaching ropes. Two buildings giving the required height and distance or a tree and the house may be used as supports for the antenna.

The antenna should be so placed that the "lead in" or drop wire from it (J, Fig. 1) can run as directly as possible to the lightning switch (K, Fig. 1). If the distance between the supports used is greater than about 85 feet the length of rope (D, Fig. 1) to which the far end of the antenna is attached should be increased to keep the distance between the insulators the required 75 feet. The rope H, Fig. 1) should not be lengthened for this purpose as the "lead in" or drop wire (J, Fig. 1) would be lengthened in so doing.

The parts to be used in erecting the antenna and their correct placing are shown in Figure 1.

A and I are screw eyes strong enough to anchor the antenna firmly at the ends.

B and H are pieces of rope  $\frac{3}{8}$  or  $\frac{1}{2}$  inch in diameter, long enough to allow the antenna to clear the two supports.

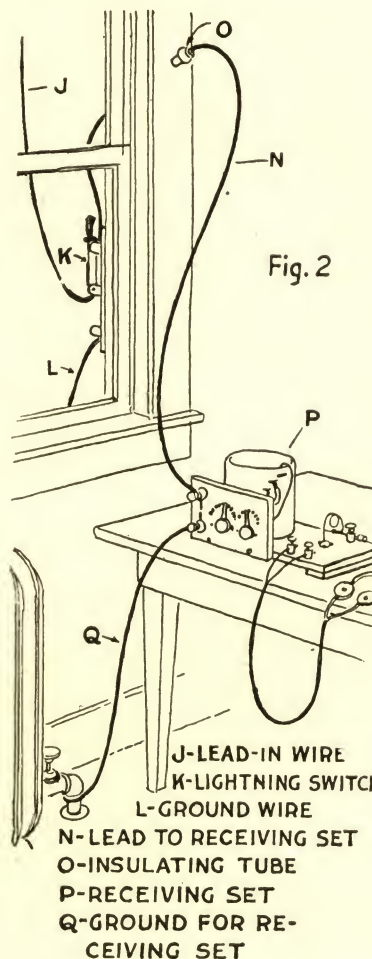
C is a pulley attached to rope (B).

D is a piece of  $\frac{3}{8}$  or  $\frac{1}{2}$  inch rope, one end of which is attached to insulator (E) and the other, after passing around the spool of the pulley (C) is fastened to a pulley block attached to the support used for the far end of the antenna.

E and G are insulators. They may be made of any dry hardwood strong enough to withstand the strain of the antenna. In the equipment illustrated blocks measuring  $1\frac{1}{2} \times 2 \times 10$  inches are used. Holes should be drilled  $1\frac{1}{2}$  to 2 inches from each end to provide means of attaching the antenna wire. The wood should be boiled in paraffin for about an hour before it is put in place. If porcelain wiring cleats are available they should be substituted for the wood insulators. Any unglazed porcelain used should be boiled in paraffin the same as the

wood. Regular antenna insulators are better and are obtainable at small cost on the market, but the ones described will give satisfactory service.

F is the antenna. No. 14 or 16 copper wire. This wire may be either bare or insulated. One end of this wire should be attached to insulator (E) by passing through the hole drilled in the wood block, attaching it solidly by twisting the free end around the antenna wire as shown in Figure 1. Then take the other end of the antenna wire and draw it through the insulator (G) until the two insulators are about 75 feet apart. The insulator (G) should then be twisted so as to wrap a portion of the free end (J), which will serve as the "lead



### Cost of Crystal Set

THE parts used in making a crystal radio receiving set and their approximate cost are as follows:

<b>Antenna—</b>	
Wire—Copper, bare or insulated, No. 14, 100 to 150 ft., about	.75
Rope— $\frac{3}{8}$ or $\frac{1}{2}$ inch, 2c per foot.	
2 insulators, porcelain	.20
1 pulley	.15
Lightning switch—30 ampere battery switch	.30
1 porcelain tube	.10
Wire (same kind as antenna wire.)	
clamp	.15
iron pipe or rod.	.25
<b>Receiving set—</b>	
$\frac{1}{2}$ lb. No. 24 copper wire double cotton covered.	.75
1 cardboard box.	
2 switch knobs and blades complete	1.00
18 switch contacts and nuts	.75
3 binding posts—set screw type	.45
2 binding posts—any type	.30
1 crystal—tested	.25
3 wood screws, $\frac{3}{4}$ in. long	.03
Wood for panels (from packing box.)	
2 pounds paraffin	.30
Lamp cord, 2 to 3c per foot	
Test buzzer	.50
Dry Battery	.30
Telephone receivers	4.00 to \$8.00*
<b>Total</b>	<b>\$11.00 \$15.00</b>

If nothing but the antenna wire, lightning switch, porcelain tube, crystal, telephone receiver, bolts and buzzer are purchased this total can be reduced to about \$6.00.

\*Still more efficient and expensive telephone receivers are available at prices ranging to about \$20.00.

in" wire, about the antenna, thus anchoring the insulator in place at the desired point. Great care must be taken not to kink the wire in attaching the insulators.

The rope (D) may now be tied to the unattached end of insulator (E) and the rope (H) tied to insulator (G), then tie the end of rope (H) to the screw eye (I) and pull the rope (D) through pulley (C) until the antenna wire is taut when the rope should be fastened securely.

The "lead in" or drop wire (J) is a continuation of the antenna wire and should be just long enough to reach the lightning switch (K) which should be placed on the outside of the house in convenient reach of a window or other opening from which it may be turned on or off.

The lightning switch (K) may be the ordinary porcelain base 30 ampere single pole double throw battery switch. The base of such a switch usually measures one by four inches. The "lead in" wire (J) is attached to this switch at the middle point. When the receiving set is not in use the switch blade should always be thrown to the lower clip. When the set is to be used to receive signals the switch should be thrown to the upper clip.

A ground wire (L) is attached to

\*1. The publishers are indebted to the radio experts in the Bureau of Standards, United States Department of Commerce, Washington, D. C., for the construction of this low priced crystal detector set.



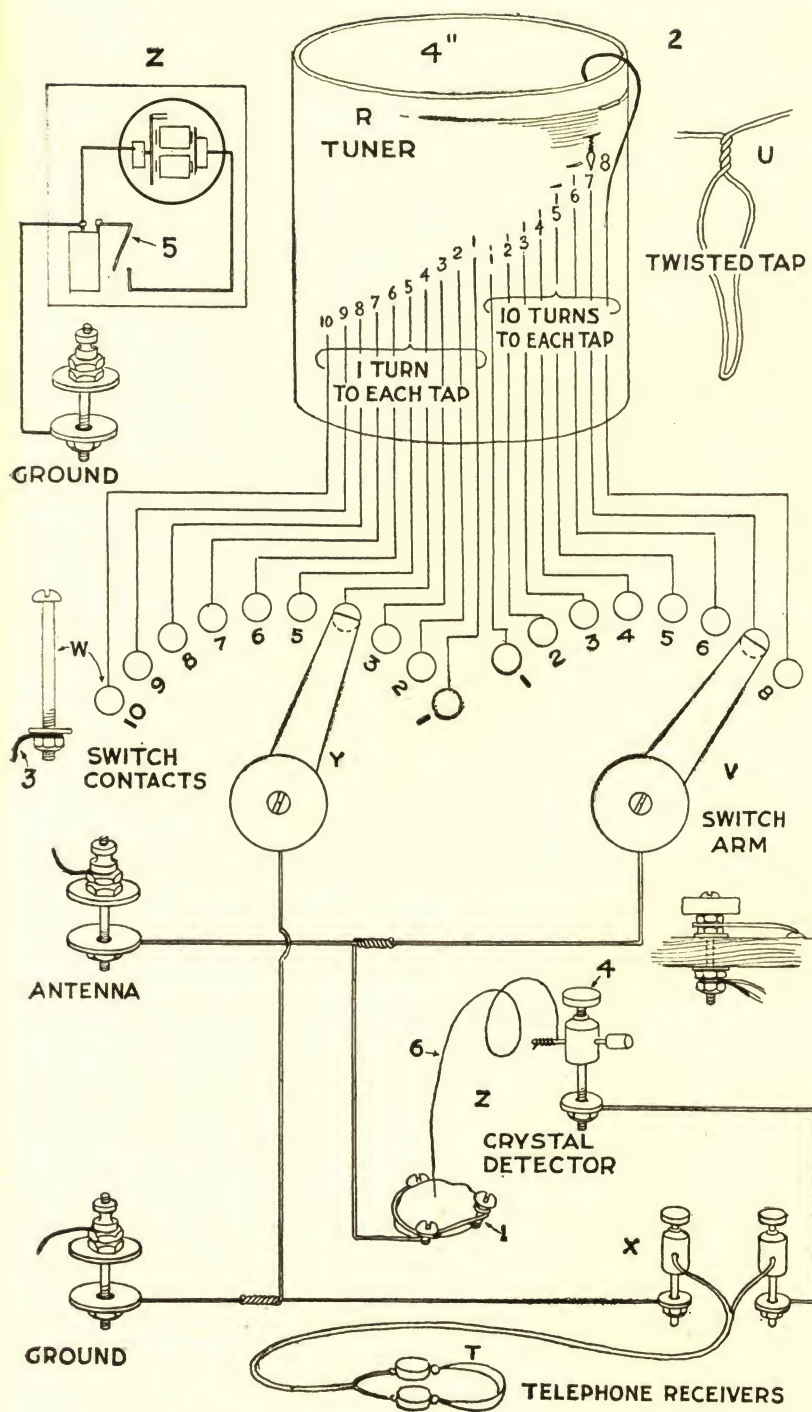


Fig. 3

the lower part of the lightning switch. This may be a piece of the same size wire as that used for the antenna. It must be long enough to reach to the ground rod (M).

M, the ground rod for the lightning switch, is a length of iron pipe or rod driven from three to six feet into the ground. If possible it should be placed in a moist spot. It should extend far enough above the ground so that the ground clamp may be fastened to it. Paint or rust on the ground rod should be scraped off before it is driven into the ground.

A wire (N), which may be of the same size as that used for the antenna, is attached to the upper clip of the lightning switch and extends to the receiving set. This wire passes into the house or building in which the receiving set is placed through a porcelain insulating tube (O). This tube must be of sufficient length to reach through the wall or casing in which it is placed. To prevent rain from following the tube through the wall it should be mounted so that the outside end is lower than the inside end.

The method of connecting up the receiving set is shown in Figure 2.

P is the receiving set which will be described later in detail.

N is the wire leading from the lightning switch (K) on the outside

through the porcelain tube (O) to the binding post on the receiving set marked "antenna," in Figure 4.

Q is a wire leading from the binding post in Figure 4 to a water pipe, the radiator of a heating system or some other metallic conductor to the ground. If no such metallic conductors are available the wire should be run out of doors through a second porcelain tube similar to (O) and attached to a ground rod which must be a different one from that used as a "ground" for the lightning switch. To get good results from the receiving set this "ground" must be of the best type and if the soil near the house is dry metal pipes must be driven a sufficient depth to encounter moisture. In sandy soil this may be 10 feet, while in clay soil a depth of 3 feet often furnishes a satisfactory "ground." The casing of a drilled well, if it is near the window will give a satisfactory "ground."

The piece of crystal (Z, Fig. 3) or the detector will have to be purchased as will the telephone receivers. The tuner and some of the accessories can be made at home.

The tuner (R, Fig. 3) is a piece of cardboard or other non metallic tubing about 4 inches in diameter with turns of double cotton covered

copper wire wound around it. A round cardboard oatmeal box may be used for the tubing.

The crystal detector (Z, Fig. 3) is made up of a tested crystal—a galena crystal is generally more satisfactory for the novice—three brass wood screws, a short piece of copper wire, a nail, a set-screw type of binding post and a wood knob or cork. The crystal is held in place on the wood base by three brass wood screws as in 1, Fig. 3. A bare copper wire may be wrapped tightly around the three brass screws for contact. Better still the crystal may be mounted in a metal crystal holder which can be purchased for a few cents. The crystal should not be handled with the fingers. The crystal may be inserted in a small metal cup or a hole bored in the base by the use of an alloy of low melting point, such as "Woods' Metal," which melts in hot water.

The telephone receivers (T, Fig. 3) may be any of the standard commercial makes having a resistance of between 2,000 and 3,000 ohms. It is advisable for good results to use a pair of receivers connected by a head band, that is a double telephone head set. These will cost more than the expense of all the rest of the station combined, but will give satisfactory results. However, a single receiver may be used by those desiring to cut the cost to the minimum. Equally satisfactory results, however, must not be expected.

Accessories to be used in making the receiving set include binding posts, switch-arms, switch contacts, test buzzer, dry battery and boards on which to mount the apparatus. The binding posts, switch-arms and switch contacts may all be purchased from dealers who handle such goods. The boards on which the equipment is mounted may be made at home from a dry packing box, the wood being covered with paraffin to keep out moisture. Detailed descriptions of the various parts and the method of assembling them will be given.

To make the tuner (R, Fig. 3) take a piece of cardboard tubing four inches in diameter, and about one-half pound of No. 24 or 26 double cotton covered copper wire. Then punch two holes in the tube half an inch from one end (see 2, Fig. 3) and weave the wire through these holes so that the end of the wire will be anchored firmly. One foot of the wire should be left free for connections. Then start to wrap the main part of the wire around the tube, making a single layer. It should be wrapped tightly as thread is wrapped on a spool,

each successive turn about the tube being close to the preceding one.

When ten complete turns have been wound on the tube the first tap is taken off. This tap is made by forming a loop of the wire six inches in length, twisting it at the point where it touches the tube as shown at U, Fig. 3. After ten more turns have been taken a second tap should be taken off in the same way. The second tap should not be placed directly under the first, but at a slight distance farther along on the turn. Proceed in this manner, taking off a tap after each ten and a fraction turns until, six twisted taps have been taken off. Then continue to wind as before, but take off a tap for each single turn around the tube until ten turns have been wound, staggering them as before so that no tap is directly below the one on the preceding turn. After the last turn has been wound punch two holes in the tube as at the start and weave the end of the wire through them, leaving twelve inches at this end also for connections. After winding the tuner as described dip it in hot paraffin to exclude moisture.

The upright panel, shown in Figure 4, consists of a piece of wood approximately half an inch thick, and large enough to provide for two switch arms with their switch contacts and the binding posts for the "lead in" and ground wires. Positions of the binding posts, switch arms and switch contacts should be laid out as shown in Figure 4 and holes should then be drilled in the wood to provide for them.

The "antenna" and "ground" binding posts may be ordinary one-eighth inch brass bolts supplied with three nuts and two washers. The first nut is used to bind the bolt to the panel. The second holds one of the short pieces of stiff wire. The third holds the antenna or ground wire as the case may be.

The switch arms shown at V and Y in Figure 3 may be purchased complete for a few cents.

The switch contacts, shown at Figure 3, may be purchased complete or may be made of brass bolts equipped with one washer each. They may also be constructed from nails driven through the panel with an individual tap fastened under the head or soldered to the projection of the nail through the panel. The switch contacts should be just close enough to prevent the switch arm from dropping between them, but should be far enough apart so that the switch arm can be set to touch one only at a time.

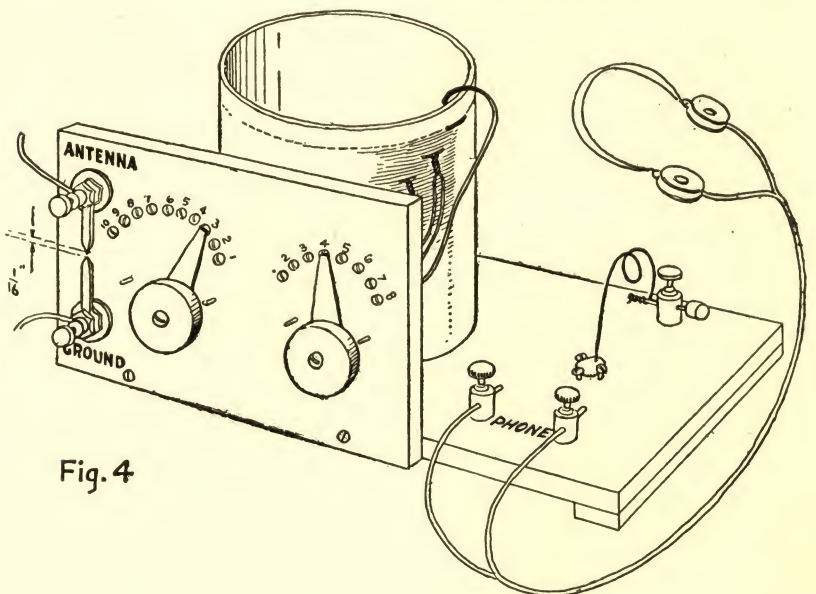


Fig. 4



The telephone binding posts should be of the set-screw type shown in X, Figure 3. These are readily purchased complete. These parts should be mounted on a second larger board which will serve as the base of the receiving set. The crystal may be fastened to the base by three wood screws as already shown in 1, Figure 3. The upright panel should be screwed to the edge of the base opposite the tuner as shown in Figure 4.

With the various parts all mounted as shown in Figure 4 the next step is to connect each tap to the corresponding switch contact and attach the other necessary wires. Scrape the cotton insulation from the loop ends of the sixteen twisted taps as well as from the ends of the two single wire taps passed through the holes punched in the cardboard tube. The bare ends of these wires should be fastened in order to the proper switch contacts shown by corresponding numbers in Fig. 3. Care should be taken not to cut or break any of the looped taps. The portion of the wire from which the insulation has been scraped should be attached to the end of the switch contact by binding it between the washer and the nut as shown at 3, Fig. 3.

A wire is run from the back of the binding post marked "ground"

(Fig. 3) to the back of the left-hand switch-arm bolt (Y) and thence to beneath the left-hand binding post marked X, Fig. 3. A wire is then run from underneath the right-hand binding post at X, Fig. 3 to underneath the binding post 4, Fig. 3 which forms a part of the crystal detector.

One end of a piece of No. 24 bare copper wire about  $1\frac{1}{2}$  to  $2\frac{1}{2}$  inches long should then be twisted tightly around a nail which has been clamped in the set screw binding post at 4, Fig. 3. The other end of the wire or "cat-whisker" should rest by its own weight on the crystal at 1, Fig. 3. The bare copper wire which was wrapped tightly about the three brass wood screws holding the crystal in place is led to and fastened at the rear of the right-hand switch-arm bolt V, Fig. 3, thence to the upper left-hand binding post marked "antenna" in Fig. 3.

The receiving set is now ready for operation. First adjust the piece of wire, which rests lightly on the crystal, to a sensitive point. There are various methods of doing this, that most frequently used, the test buzzer, being described here later.

Having found the most sensitive point on the crystal, as described later herein, the receiving set must be put in tune with the station from which one wishes to hear messages.

This tuning is best accomplished by setting the right-hand switch arm on contact 1 and rotating the left-hand switch arm over all its contact. If signals are not heard, move the right-hand switch arm to contact 2 and again rotate the left-hand switch-arm. Proceed in this manner until you are in resonance with the transmitting station from which you desire to hear messages.

The test buzzer used in finding the most sensitive point of the crystal is a miniature local transmitting set and may be purchased complete. When connected with the receiving set as shown at Z, Figure 3, the current produced by the buzzer will be converted into sound by the telephone receivers and the crystal, the loudness of the sound depending on what part of the crystal is in contact with the fine wire.

To find the most sensitive spot connect the test buzzer to the receiving set as shown at Z, Figure 3, close the switch (5, Fig. 3) and if necessary adjust the buzzer armature so that a clear note is emitted by the buzzer, set the right-hand switch-arm on contact point No. 8, fasten the telephone receivers to the binding posts marked phones (Fig. 4), close the set screw of the binding post slightly and change the position of the fine wire (6, Fig. 3) to several positions of contact with

the crystal until the loudest sound is heard in the phones. Then slightly tighten the binder post set screw at 4.

#### The Oscillation Transformer

A MORE elaborate type of inductance, giving the set greater possibilities of adjustment than that just described, is known as the oscillation transformer. Instead of a single coil of wire the oscillation transformer consists of two coils, one within the other, called a primary and secondary.

To form the primary coil eight wooden dowel pins should be set into a wooden case to form a circle about nine inches in diameter. Then put porcelain spool insulators on each of the dowel pins and wind heavy copper wire around the dowels on the insulators. From three to four turns of the wire should be used, but more may be added if necessary.

The secondary coil is made smaller than the primary so that it can be slipped inside. Two circular wooden end pieces eight inches in diameter are used to hold the dowels, which should form a 7-inch circle. Insulators should be placed on the dowels, and the secondary should then be wound, nine turns being used.

## The Stars That Entertain Unseen Audiences

LISTENING at home to the voices which come through the air, it is natural that we should wonder about the folk who entertain us. And on their part no doubt exists an intense curiosity as to the unseen audiences which they address. Thomas Cowan, announcer in Station WJZ, related to Golda M. Goldman many amusing incidents of the broadcasting house which are told in *Radio News*.

"Famous artists, like May Peterson, Marie Rappold and Percy Grainger, have given the listeners-in some wonderful evenings of pure art. And the lighter performances, such as that given by the Pennsylvania Grill Orchestra, have brought over people of the finest type in that particular line of work," he said.

"I'm particularly proud of some of the serious messages that have been sent out to the people. They so strongly forecast the things we may expect radio to do in the future. There are the words of Joseph Tumulty, for instance. Do you remember? 'Some people grow; others just swell!' Good idea, that. And Dr. Adolph Lorenz was especially splendid when he talked. I recall the conclusion of his speech. He had been making a plea for healthy children because, he ended, 'Good babies are the saving of the world, much the same as that other Infant, the Infant Jesus, who redeemed the world.'"

"Have you heard about the night that Mme. Margaret Namara of the Chicago Grand Opera Company came over? She had been a tremendous success in 'Thais' at the Manhattan Opera House in New York, on Monday night, and offered to come and broadcast it over the radio on Thursday night. She came here first to look the studio over, as she wanted to have her movie man film her as she sang. When she saw our plain, whitewashed walls, she was thoroughly disgusted and showed it with the true abandon of the artist. How could anyone ever ex-

pect to get atmosphere in that place? I swore to her that it wouldn't look like that when she came to sing, and it didn't. I hustled around for the intervening three days and brought hangings and paintings from my own apartment, ordered palms and cut flowers in profusion and put a big rose floor lamp behind the piano. You would never have recognized the place.

"It was interesting to see how superbly an artist can brush all the

sacredness of a manager's importance to the winds. When Mme. Namara arrived on the appointed night she and her maid swept imperially into the manager's office, which they at once converted into 'dressing room No. 1.' When the door opened a little later, we had a demonstration of the wonderful power of transformation.

"On the threshold of the office stood 'Thais,' the fair Alexandrian, the inspiration of Massenet's opera.

### The Romance of the Radiophone

Continued from Page 65

service through high powered Government stations extending in a network across the continent are now being worked out. Already several departments are making extensive use of radio telephony. The United States Public Health Service of the Treasury Department has been operating a health information by radio service on a regular schedule since December, 1921. The Department of Agriculture has been using radio since November of last year to broadcast crop, market and weather reports; extensive plans are under way in the Bureau of Education in the Department of the Interior for a great educational service through Government stations; the Department of Labor is active, and other departments will soon be issuing educational news. The possibilities of radio as an educational medium seem boundless.

So rapidly has the interest in radio transmission spread that the day is certainly not far distant when a radio receiving set will form a part, in fact a most important part, of the equipment of every American household. It is already possible for a man to deliver a message simultaneously in homes throughout hundreds of square miles of territory. The Public Health Information by Radio Service lectures of the United States Public Health Service, transmitted through NOF, the

powerful Naval Aircraft Radio Laboratory station at Anacostia, D. C., have been heard simultaneously in Nova Scotia, Cuba and western Kansas. At some not far distant time, so great are the possibilities of radio, the President of the United States, when he has a message of general national interest to present, will not merely present it to Congress, but will speak into a broadcasting station that will send his words into the homes of the citizens in every state of the Union. Already voice broadcasting through NOF, on the banks of the Potomac, has been heard in southern California, and code messages from the same station have been picked up in Honolulu.

No one can predict the future of radio or estimate what will be the value of its service to mankind. What will be the effect upon this little earth and its peoples when the voice of a man in Chicago, Washington, Paris, Berlin, Moscow or Tokio will be carried around the world? A new age is dawning—we stand watching that dawn and distances shrink, barriers of mountains and seas, barriers of language and illiteracy are being swept away. Who can say what radio will mean? Perhaps a United States of the World, united through the common medium that envelopes us all.

LOUIS JAY HEATH.

Sandaled and ablaze with jewels she recalled the popular song, 'Rings on her fingers and bells on her toes!'

"While the office force staggered under the impact of this night of thrills, 'Thais' entered the despised studio to be flashed by the cameraman; inside the door she stopped amazed.

"Ah, but this is not the place I saw the other night," she declared.

"When I explained that I was the master interior decorator, with all her usual artistic abandon she flung her arms around me and kissed me, telling me what a fine little fellow I was. It took me five minutes to get the powder off so that I could take my place before the camera!

"Then the prima donna sang the 'Mirror Song,' and was photographed in action. The sequel was a stirring duet, which in plain English might be called a heated argument between the singer and her cameraman on the subject of close-ups, on which Mme. Namara had her own views, as she had acted before the camera on other occasions. As usual, the lady won!

"Then the scenery was 'struck' in the studio, while Madame struck the scenery of 'Thais' and got back into civies.

"The curtain showed me tucking a fur robe around her in her car. It was a cold raw evening, and after seeing the costume of 'Thais,' one would want to be sure she was warmly wrapped. I filled her arms with flowers, wished her Godspeed to Bayshore, Long Island, and closed the door.

"But the manager's office! Powder! Powder on the floor so thick it showed her footprints! Powder in the inkwell! The force of announcers turned themselves into mops and, regardless of dignity, we cleaned that place up so that the boss wouldn't see it in the morning and call us down."

Mr. Cowan ran his fingers through his curly hair and leaned back in evident enjoyment.



# How to Make Your Own Radio Receiving Set

**R**ECEIVING sets having a greater radius than the crystal detector type may be made by the use of the vacuum tube. The vacuum tube resembles a small electric light bulb. The parts making up the vacuum tube are shown in Fig. 13. There is a filament which lights up when connected with a battery, and the filament is enclosed in a glass tube which has been pumped out so that it contains a high vacuum.

Surrounding the filament within the tube is a small spiral spring or broiler shaped arrangement, known as the grid, and enclosing both filament and grid is a cylindrical or rectangular piece of metal known as the plate. The purpose of the vacuum tube is to serve as a detector of radio signals. The knob adjusting the filament is turned until the filament is operating as specified by the manufacturer. In most tubes the filament should give a white light, but not a bright, white light. If the tube is operated with the filament too bright the life of the tube is considerably shortened.

Essentials of the vacuum tube set, in addition to the tube itself are three loosely coupled inductance coils (C, Fig. 1), a fixed condenser (D, Fig. 1), a grid leak (E, Fig. 1), a variable condenser (F, Fig. 1), a rheostat (H, Fig. 1), two batteries, one of 6 volts and one of  $22\frac{1}{2}$  volts and a pair of telephone receivers coupled in a head set. These parts with the exception of the telephone receivers, the vacuum tube and the batteries may be easily made at home.

The loosely coupled inductance coil is shown in detail in Fig. 2. The materials required include some stiff, smooth cardboard, heavy Bristol board, thin fibre board or similar material and half a pound of No. 24 D. C. C. (double cotton covered) wire). A ten-cent phonograph record may be used. Two binding posts and several screws and bolts will also be required.

Taking a pair of compasses or dividers, draw three circles five inches in diameter on the cardboard or fibre or phonograph record. Again using the dividers mark off lengths one-seventh of the circumference around the edges of each of the circles. Using the centers of the larger circles draw smaller circles  $2\frac{1}{2}$  inches in diameter inside each of the larger circles (B, Fig. 2). Then draw lines from the marks on the outer circumference, of each circle to the center (C, Fig. 2). Using a pair of scissors or sharp knife if cardboard is used, or a fine saw if fibre is employed, cut out the discs around the circumference of the larger circle. Then cut discs along the lines to the center extending in as far as the circumference of the inner circle (D, Fig. 2).

If cardboard has been used it may be covered with two or three coats of melted paraffin. You are then ready to wrap the discs. Leaving enough of an end for connections start the wire, which should be No. 24 D. C. C. wire, at the inner end of one slot, winding it over one segment and under the next, continuing for thirty turns around the disc

## II---The Vacuum Tube Set

for the primary coil for 45 turns for the secondary coil and for 60 turns for the tickler.

The method of mounting these three discs after they are wound with wire is shown in the lower part of Fig. 2. The primary coil should be mounted rigidly and immovably on the wood base and connected by means of binding posts to the aerial and ground wires. The secondary coil and the tickler coil should then be fastened to brass strips two and one-half inches long, one-sixteenth inch thick and half inch wide. One

spread ends on the lowest piece of foil between it and the bottom paper. Then place the other, frayed and spread the same way, on the upper piece of foil at the opposite end and with a few drops of hot paraffin fix them in place on the edges of the paper. When this is completed roll the whole, being careful not to displace the foil which may be secured to each piece of paper with a few drops of paraffin at the edges, forming a small cylinder. Wind the cylinder tightly with fine thread at each end or wrap with adhesive tape

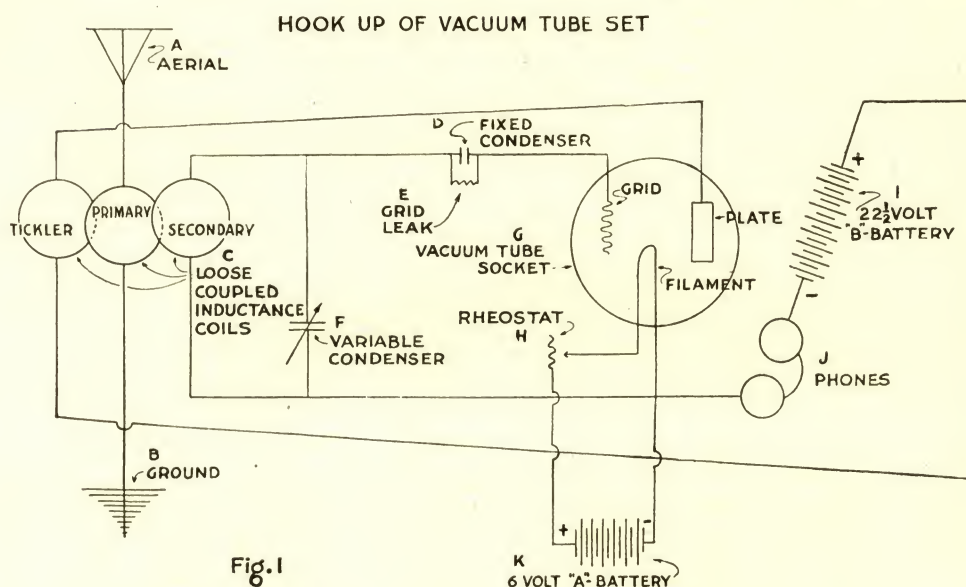


Fig. 1

end of each strip should be attached to a movable peg or bolt with a fibre or bakelite knob at the opposite end.

The secondary and tickler should be so spaced that they can swing back and forth to cover more or less of the primary, but care should be taken not to let the tickler touch the primary coil.

A single inductance may be used with this set instead of the loose coupled inductance coil. The single inductance may be made by winding a pasteboard tube about three inches in diameter and two inches long with about forty-six turns of No. 26 double cotton-covered copper wire. A tap-off should be taken at the twenty-third turn by making a loop in the wire and then the next twenty-three turns wound on.

The fixed condenser (D, Fig. 1) may be made by laying sheets of tinfoil between sheets of waxed paper. Smooth tinfoil, free from holes or tears should be used. Mica or paper condenser can be bought for a small sum. Two pieces one inch in length and one-half inch in width should be cut from this. Then from thoroughly waxed paper, which can be purchased or made by soaking good quality writing paper in melted paraffin, cut three pieces five inches in length and three inches wide. On one of these pieces place a piece of the foil, cover this with a second strip of paper, place the other strip of foil over this and cover with the last strip of paper. Care should be taken that the edges of the tinfoil are well within the margins of paper and are accurately in line or centered. Next cut two pieces of flexible stranded light wire five or six inches long, spread apart the strands at one end of each piece, and place one of these frayed and

and dip the whole into hot paraffin. A better connection will be obtained if the connecting wire is secured to the foil by a small drop of solder.

The grid leak (E, Fig. 1 and Fig. 6) should be shunted across this fixed condenser. This consists of a piece of cardboard placed between two binding posts or terminals with several soft lead-pencil lines drawn across it from post to post. Pencil marks should be drawn about the holes where the posts are to be inserted in order to be sure that a good connection is made. India drawing ink (made of carbon) may be used instead of pencil marks. The resistance of home-made grid leaks often varies somewhat so that noises are caused in the telephones. A number of grid leaks may be constructed and the most satisfactory one selected. Manufactured grid leaks of satisfactory performance may be purchased at reasonable prices.

The variable condenser (F, Fig. 1) consists of a series of semi-circular plates of aluminum, copper or zinc, so arranged as to swing past fixed discs. The details of construction are shown in Figs. 7 to 10. The air spaces between the plates correspond to the waxed paper between the strips of foil on the fixed condenser.

The completed condenser is shown in Fig. 8. It is mounted on a circular base of wood or fibre with a wood or fibre base on top with a circular projection at the center. A long bolt (F, Fig. 9) should be inserted through the center of the base. Seven sections of copper tubing (E, Figs. 9 and 10) about three times the thickness of the plates should be slipped over the bolt to hold the plates in place. First a

piece of tubing is dropped over the bolt to the base, then a plate is slipped over, then a bolt followed by a plate, alternating until the six plates (G, Fig. 8) are in place. The stationary unit of disks (J, Figs. 8 and 10) should be secured to the base by three nuts (L, M and N, Fig. 8). The short lengths of copper tubing (K, Fig. 8) should be used to separate the stationary discs in the same manner as in the rotary unit. The semi-circular top cover can then be put in place. On the bolt acting as pivot for the rotary unit of discs a washer (D, Fig. 9) should then be slipped, then a hexagonal bolt (B, Fig. 9), then a metal pointer (C, Fig. 9), then another hexagonal nut and then a knob (A, Fig. 9). The bolt (L, Fig. 8) securing the stationary unit should be fastened by a binding post (H, Fig. 8) while the other two bolts (M and N, Fig. 8) are fastened by nuts. The construction of a satisfactory variable condenser requires considerable mechanical skill. Manufactured variable condensers can be purchased for a few dollars, which can be expected to give better results.

The rheostat, shown in Fig. 11 and 12, is composed of a wood or fibre disk around which a spiral coil of wire (H, Figs. 11 and 12) is placed. A bolt (F, Fig. 12) is inserted in the center of the disk with the head underneath.

On the threaded end of the nut, on top of the disk place first a washer, then a hexagonal nut and then a contact arm of brass (C, Figs. 11 and 12). The contact arm should be shaped so as to enclose the spiral coil at its end. Above the contact arm on the bolt should be placed a second hexagonal nut and a knob shown at A, Figs. 11 and 12. A bolt (G, Fig. 11) will serve as a binding post to fasten one end of the spiral coil. It should be placed near the outer rim of the disk with the head beneath serving to secure a wire to 6 volt battery "A" shown at K in Fig. 1. On the threaded end of the bolt a washer should be placed with a hexagonal nut on top, the end of the coil being held between the washer and nut. A common wood screw may be used to secure the other end of the coil. Drive the screw into the edge of the disk as shown at I, Figs. 11 and 12 and as the head of the screw approaches the wood turn the end of the coil beneath the head and tighten it until it is firmly held. It is important that the contact arm make a good contact with the wire, otherwise noises may be caused in the telephone. Manufactured filament rheostats can be purchased at reasonable prices and can be expected to give better service than home-made rheostats.

The manner of hooking up the various parts of the vacuum tube set described is plainly shown in Fig. 1, Page 68. In making the connections the phone receivers (J) and the "B" battery (I) should be placed in series, the positive pole of the battery being connected with the tickler of the loose coupled inductance coil—if the single inductance is used the positive pole of the battery should be connected with the



tap-off on the inductance. The negative pole should be connected with the receivers as shown.

The positive pole of the "A" battery should be connected with the rheostat (H, Fig. 1) and the negative pole with the filament of the vacuum tube. The ends of the wire wound on the primary coil of the inductance should be connected with the aerial and the ground wire. The other end of the tickler wire from the one connected with the "B" battery should be connected with the plate of the vacuum tube. The secondary coil of the inductance should be connected with the telephone receivers and with a wire running through the fixed condenser and grid leak to the grid of the vacuum tube. A wire connected with the two wires from the secondary inductance coil runs through the variable condenser (F, Fig. 1).

When this wiring is completed as described the set is ready to receive messages. The variable condenser may be set at zero. The rheostat for the tube filament should then be brought to a point where the oscillations produce a squeal or howl. The secondary (plate) coil should then be adjusted in position until the oscillations stop. The position of the condenser pointer should then be adjusted until the signals are clearest. When the best point to receive signals has thus been determined the tickler coil may be adjusted in position until the best signal is received. The filament rheostat may then be readjusted until a squeal is produced by the oscillations, and then the filament current decreased a little until the oscillations stop.

The knobs may be marked to show the points at which they should be set to receive from a given station, and the set can then with a little practice be adjusted very accurately and quickly.

For 5 cents Circular No. 122 of Bureau of Standards "Source of Elementary Radio Information" may be obtained by writing the Superintendent of Documents, Government Printing Office, Washington, D. C.

#### LOOSE COUPLED INDUCTANCE COIL

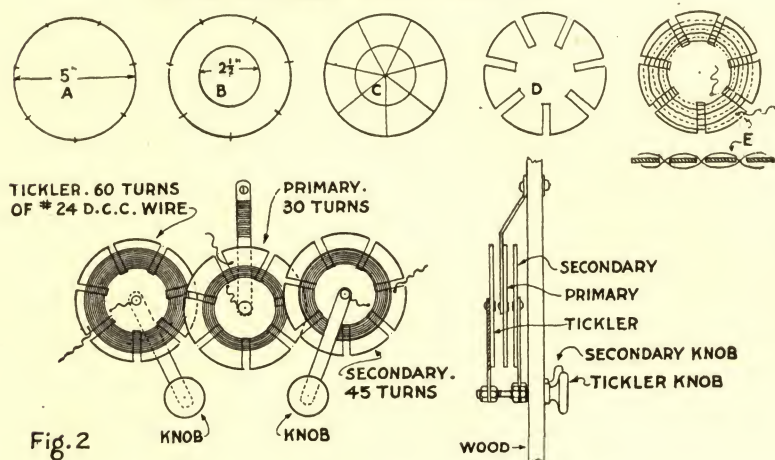


Fig. 2

#### Only Fifteen Silent States

CALIFORNIA so far leads the country in the number of broadcasting stations. She now has thirty-seven stations; Ohio comes next, and Pennsylvania and New York are close behind, according to a study made by the National Geographic Society. Only fifteen states are without broadcasting stations, these being North and South Dakota, Arizona, Nevada, Utah, Wyoming, Idaho, Montana, Florida, Mississippi, South Carolina, Kentucky, Rhode Island, Vermont and New Hampshire. All these States, of course, listen to broadcast matter from many others all over the country.

## How Programs Are Broadcasted

THE key to all interest in radio is broadcasting. To the development of great stations where music and entertainment of the highest character is sent abroad free to all who are equipped to hear, the amazing spread of interest in wireless telephony is due. Every possessor of a radio set should understand how broadcasting is done, as this knowledge will give him a keener appreciation of the concerts he picks up. An exhaustive and authoritative account of "Broadcasting Methods" is given in *Radio News*, one of the many excellent periodicals devoted to this subject, by C. E. LeMasena. He writes:

AS soon as the radiophone's adaptability for broadcasting reports, concerts, lectures, religious services, news and other forms of entertainment became recognized, a new field of endeavor was created, known as Radio Art. The beginnings were crude and, therefore, subjected to any and frequent changes in method and in kind. The developments in a single year have been so astonishing as to warrant the assumption that another twelve months will be even more fruitful with respect to improvements and functions. It is estimated that there will be 25,000,000 receiving sets in use at that time, which presages a world enmeshed in radio. The possibilities for the extension of culture, education, knowledge, advertising, entertainment, religion, politics, etc., are limitless, and therefore beyond man's power to prophesy. It is a tremendous, an astounding outlook, with magnificent opportunities if rightly and correctly employed.

There are over 19,000 licensed radio transmitters, 15,495 being amateurs engaged in sending and receiving messages for personal amusement; 2,783 American shipping; 439 commercial; and 348 experimental. Of the 15,495 regular stations, the most important are located in the east: Pittsburgh (KDKA), Newark (WJZ), Chicago

paratus and Equipment" comprises technical arrangements, amplifiers, microphones, operators, antennae, counterpoise, oscillators, modulators, station, wave-length, tuning, generators, motors, etc. Under "Studio" we have management, arrangement, reception, outfit, accessories (pianos, organs, phonographs), transportation of artists. "Programs" include make-up, hours, booking, personnel, requisites, policy, management (impresario), expense. "Methods" embraces a large accumulation of items, such as vocations, criticism (outside and inside), letters, suggestions, improvements, advertising, publicity, compensation, expense, grouping, experiments, and particularly direction upon which the success of the work depends materially. An able guiding mind and hand is the backbone of radio broadcasting during this present period of florescence.

#### The Radio Impresario

ALL large broadcasting stations are operated by a staff under the supervision of one responsible person. This radio impresario carries a heavy load upon his shoulders, for the position is such as only one possessed of knowledge, understanding, experience and ability can fill. Upon the kind of service he and his staff devise and upon the way it is handled depend the success of their endeavor. The only financial return from such costly service is of course the sale of receiving apparatus in which other manufacturers and all dealers participate without cost. But without this service there would be fewer sales, therefore it is imperative that it be kept up and in the best manner possible. To install a broadcasting outfit and maintain adequate service runs into big money. Without going into details as to this particular matter, let us turn to the methods employed by the six big stations.

As the pioneer in the art, the Westinghouse Company is entitled to first consideration. KDKA has been in operation since November, 1920, and it is due to the experiments and developments of this station that radio art has advanced so rapidly. Comparing broadcasting of today with that of a year ago, the improvement is as remarkable as it is satisfactory. There still are limitations and problems to be overcome, but the listener-in is getting better results every day and radio fans are increasing more rapidly than manufacturers can supply sets. Radio art is a constructive force, so it is the duty of everyone to support it and assist in its progress toward perfection, which ultimately means much to the world at large.

Every broadcasting station, aiming faithfully to transmit radio news or entertainment, must be equipped with high-class apparatus. In the six big stations particular attention has been paid to the installation of material of highest quality, such as is not found in smaller stations. At the beginning it was soon discovered that an equipment giving satisfactory oral results was inadequate for music transmission. Therefore much experimenting and changing had to be done to improve the quality of transmission so that both voice and music could be faithfully reproduced. The scientific problems of broadcasting having reached a stage of comparative satisfaction, attention could be given to methods.

The four plants of the Westinghouse group, growing out of the company's experience in equipping American aero-

planes in France with radiophones, are conducted upon the same principles and embody practically the same ideas. It will not be necessary to describe each, therefore we will select the WJZ station as representative, although it did not begin to broadcast until eleven months after its sister station KDKA at Pittsburgh. The apparatus at Newark is efficient, consisting of a six-wire counterpoise antenna, which provides for multiple tuning on far end. There are eleven wires, 150 feet long and 124 feet above the roof, which is 100 feet above the ground. The natural wave-length is reduced to 360

#### FIXED CONDENSER

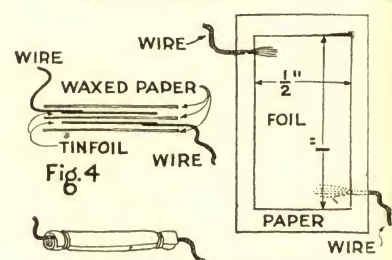


Fig. 4

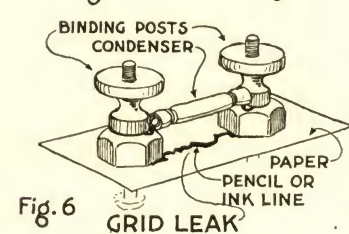


Fig. 5

Fig. 6

meters by the use of special condensers in series on the Westinghouse aerial. An ingenious arrangement obliterates inherent distortion of the vacuum tube transmitters so that the speech and music is of unusual clarity, limited only by characteristics of the microphone, which transfers the sound-waves in electrical form to the amplifier.

The station is complete with respect to studio and arrangements. The old broadcasting room has been replaced by one of larger and more adequate dimensions. It is attractively furnished and located on the first floor, convenient to artists and organizations. A grand piano, an organ, a phonograph and other musical instruments form part of the equipment. An interlocking system of switches and light signals connects the studio with the transmitting room on the roof. The microphone used is the cup style suspended from a movable arm attached to a portable stand. The sound-waves are sent through the microphone to an amplifier box in the same room in which they are amplified many times and then transferred to the roof, where they are increased to the required amplification. This is a new method by means of which transmission over a long telephone wire from microphone to main amplifier is eliminated, an obvious advantage.

#### Arranging the Program

THE daily program is arranged in accordance with air traffic regulations, and with a view to giving a variety of entertainment and instruction. This program consists of agricultural reports and prices, opening prices on stocks and bonds, weather forecast and standard time signals, interspersed with music, during the morning. Then come midday prices on stocks and bonds, shipping news, sporting scores and results, fashion news, more weather forecasts, agricultural reports and prices, shipping news, closing market prices and music in the afternoon. The evening is devoted to concerts, recitals, lectures,



## VARIABLE CONDENSER

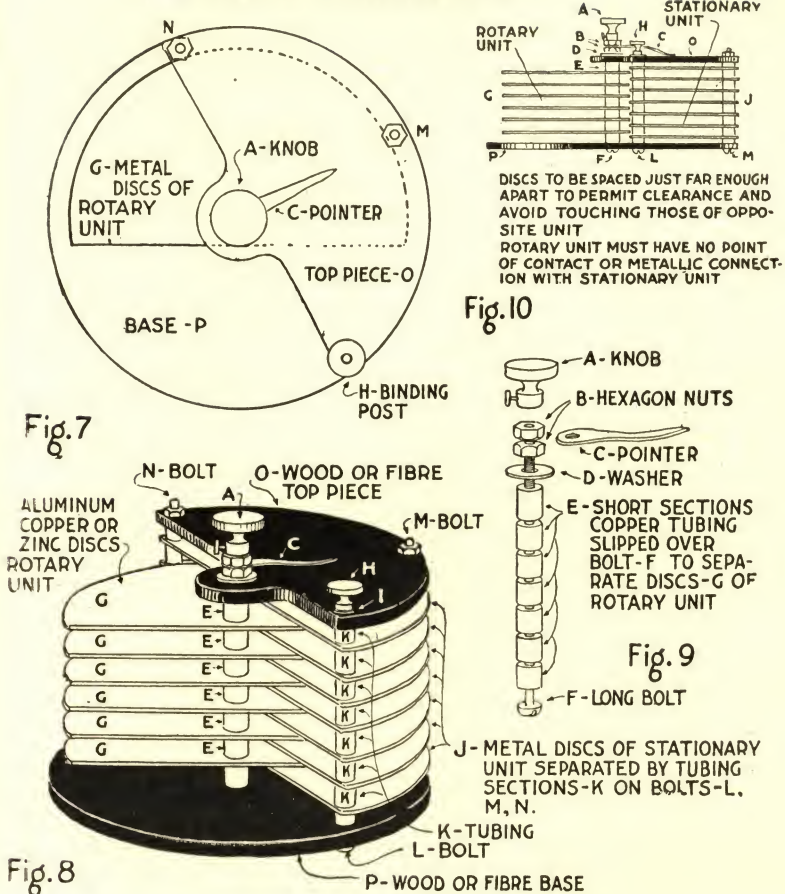


Fig. 10

Fig. 9

## The East Pittsburgh Station

IN East Pittsburgh a single Westinghouse condenser microphone of two stretched steel diaphragms is used. The announcer in the studio is in constant communication with the operator on the roof, as at the Newark station. Artists are brought into the studio, which is heavily carpeted and with two thicknesses of burlap on walls, similar to the recording room for making records. This differs from the Newark studio, which has rugs on the floor and undraped walls. One of the fundamental principles of acoustics is that intensity of musical tones is appreciably strengthened if the singer or instrumentalist stands on a bare floor and in a place devoid of draperies. It is, therefore, surprising that this point should have apparently escaped the attention of the studio directors. The Springfield station is undergoing important changes that will advance it to a position as commanding as that of the others.

Things are somewhat different at the WGY station at Schenectady, where the radio-transmitting apparatus and the studio are located in different buildings, about three-fifths of a mile from each other. This arrangement permits of considerable flexibility, inasmuch as it allows the broadcasting of programs from any point that can be connected to the studio by a telephone line. The main transmitting plant is on the top floor of one of the factory buildings, with a multipletuned antenna erected on the roof. This antenna is 350 feet long, supported by a 180-foot steel tower at each end. The counterpoise system, a few feet above the roof, consists of a network of wires that act as a "ground" for the antenna, resulting in a considerable decrease in effective resistance of the entire system. Two fundamental conditions for the successful operation of the radio-telephone transmitter—high frequency energy and its control in accordance with the audible vibrations to be transmitted—have been successfully fulfilled by the General Electric Company at this station. The wave-length is also 360 meters.

Three rooms are utilized at the studio: one for reception, one for musical instruments and one containing the controlling and amplifying apparatus. The only electrical mechanism in the performing room are small microphones mounted on movable stands so that they may be placed in the best position for the selection to be broadcast. These implements have been carefully designed with a view to clearly reproducing the true tone qualities of the music the minute electric currents, which are set up in the mi-

is also in telephone communication with the transmitting department, which maintains a constant watch on the operator, who likewise keeps a sharp eye on his apparatus. All circuit adjustments are under control of the censor and no changes may be made without his consent. For broadcasting events that enlist the services of a number of participants, several microphones are used in parallel. The positions of the artists and the tonal variations are directed by a series of cards with such phrases as, "Please Sing More Softly," "Please Stand Nearer Microphone," "Please Enunciate More Clearly," etc. This station has found that the string quartet or the small symphony orchestra is reproduced the most perfectly, while the brass band is one of the difficult problems because of its "edge" in brilliant effects, but cornet, trombone and saxophone solos go over the radio in excellent style. A ladies' quartet does not broadcast well unless the number be unaccompanied and the singers employ considerable softness of tone emission. Violinists, pianists and tenors are easily managed.

Probably the most unique broadcasting station is that in the heart of New York City, known as WWZ. It is a constant reminder of that enterprising, far-visioned American merchant—John Wanamaker. Back in 1911 he installed a Marconi wireless telegraph station on both stores, thereby establishing direct communication between New York and Philadelphia. In December, 1921, the toy department of the New York store added a small radio section. In March, 1922, this was removed to the seventh floor as an adjunct to the broadcasting station under the direction of D. C. Smith. This was publicly opened on April 4 last. A musical program has been rendered every day and evening since. All activities, other than technical, are in charge of J. Thurston Noe, assistant to Alexander Russell, concert director of the Wanamaker industries.

The program is arranged on a somewhat different order from others. It follows a definite scheme and carries out a prearranged plan. There is a diversity of entertainment, including music, literature, sports and miscellany. Every afternoon at 1:40 Edna Beatrice Bloom, official soprano soloist of the Auditorium, gives a brief recital of three or four songs. At 2:40 there is a short recital of music by the Ampico piano or the victrola. At 3:40 another song recital or talk.

## VACUUM TUBE

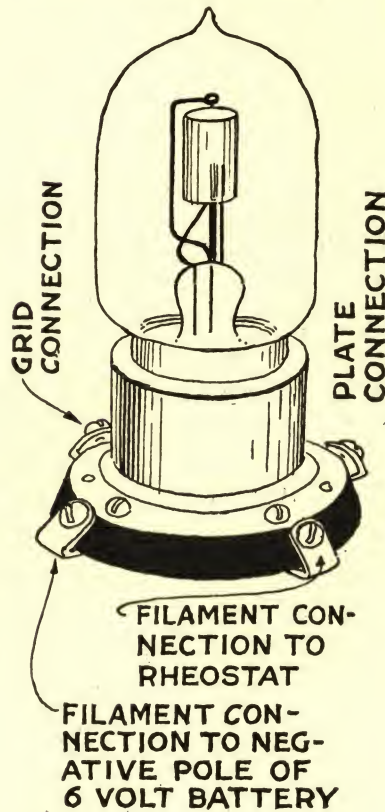


Fig. 13

crophone, are first transferred to the amplifying room. Here the intensity of the transmitted selection is varied at will by means of various controls on the amplifiers. At the output terminals of the last amplifier, an electric current that varies in accordance with the sound waves impressed on the microphone, is available and is transmitted, over a pair of wires, to the modulator tubes at the main station.

## How Censorship Is Exercised

CENSORSHIP and supervision is exercised by those in charge. The studio director is able to cut off the microphones in or out of the circuit by means of a control switch. The illumination of a red lamp, as soon as the switch is closed, is the signal for quiet, as the great invisible audience is then in contact with the studio. The censor is stationed in the apparatus room. He listens to everything that enters the microphone and makes such adjustments as he deems necessary to improve the tone quality. He

## RHEOSTAT

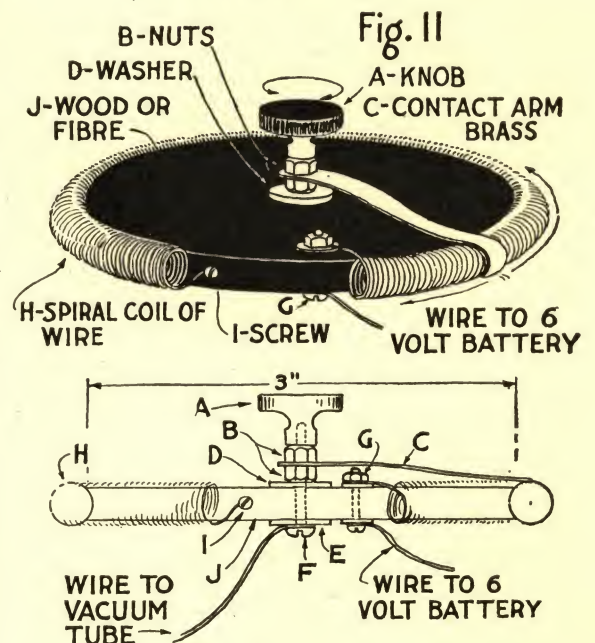


Fig. 12



# The Home Out-of-Doors

By JAMES H. BURDETT

Director of the National Garden Bureau



A Good First Impression

WITH a swiftness characteristic of America, the art of gardening has begun to spread among home owners in this country to an extent which warrants the prediction that in ten years the detached home without a garden will be exceptional.

This is not strange. Always as civilizations have matured, gardening has grown in favor. It is the antidote of artificiality, the effort of man to preserve balance in lives which threaten to become alienated from nature. The pioneer lives in a natural garden. His efforts are bent toward the creation of comforts, and the development of industry. In this pursuit he ruthlessly destroys natural beauties and spreads ugliness abroad with heedless hand. His children are born into surroundings of extreme unpleasantness. On the farm, treeless fields and utilitarian barnyards surround them; in the city, workingmen's slums, poorly paved streets and smoke polluted air.

## The Return to Nature

THE reaction to this is a demand for a return to nature, but nature has been changed. Forests and prairies have been transformed, except at great distances from industrial and agricultural centers. At first the hunger for a beautiful outdoors is satisfied in those who can afford it by vacation trips to the remaining wild places. In mountains, in woods, and besides rivers and lakes, they imitate the life their pioneer fathers lived. But gradually the knowledge comes that the beauties of nature can be enjoyed at home, and by more of us. It is not

necessary to camp out to regain touch with the out-of-doors.

First porch life was developed and brought to Americans the knowledge that summer health and comfort was possible without forsaking the well-planned conveniences of their sanitary homes. Now gardening is teaching them how to develop an outdoor home.

There is logic and economy back of this trend. Why should the owner of a 50-ft. lot be content to make use of only a fifth of it, that which is covered by his house, while the remainder, bought usually at a stiff price, is devoted to a public front yard, purely ornamental, and a service back yard, used if at all for hanging up clothes? For the price of a few pieces of furniture, an outdoor living room may be developed where the life of the family may be lived during the summer months amid the delightful surroundings afforded by a garden.

A good deal has been said lately about avocations for busy men and women. We have learned that some of them pass their spare time in painting and find pleasure and recreation in it, because it brings them self-expression. Still others find in music a spiritual uplift. We are told of the importance of harmonious decorations within our homes and the tran-

quilizing psychic effect of well-planned interiors.

No one who has had an opportunity to test it will deny or minimize the value of the contribution to peace and contentment which the contemplation or expression of beauty in any form has the power to make.

Whether it be in painting, in playing music or in gardening, there is more happiness to be found in this direction than in any other. And, in my opinion, gardening for the average man or woman has such superior opportunities that in most cases it is the answer to the problem.

Not every one can learn to play music or paint a picture, but every one can make a garden. The amateur painter, with few exceptions, must be content with mediocrity, but the amateur gardener has it easily in his power to produce perfection in the form of flowers.

As a pursuit for business folk, gardening is both esthetic and athletic, providing outdoor physical exercise and contributing to the health of the body as well as that of the soul. Socially, gardening has greater value in the influence it has upon the stand-

ards of the community.

And as an intellectual exercise and an opportunity for the expression of beauty in its highest forms, the planning of gardens is second to no other form of art. All of which should not be allowed to frighten any householder from beginning to study garden planning as something easily within his power to work out delightfully and execute economically in his own home grounds, with resulting happiness and contentment which, I am sure, cannot be surpassed in any other way.

## Planning the Home Grounds

IN planning the home grounds, the first step usually is to divide the space outside the house into three areas—public area, private area and service area.

The public area is the front yard. In most American suburbs this is never fenced, but is entirely open to public view. The chief object of planting here is to set off the house, accenting its architectural merits and screening its weaknesses. A foundation planting is usually the most important feature with oftentimes a hedge or border plantings of shrubbery. The practice of planting shrubbery in parkways is bad, and near corners it is dangerous, because of obstructing the view of automobile drivers. Trees in parkways are excellent.

The service area requires no planting, except for the purpose of screen-



A Vine Clad Porch





The Children's Sand Box



Picking Your Own Cherries

Color in masses will register and arouse admiration, where mixed plantings would be ignored, so the gardener who wishes to make an impression upon the sterner sex would do well to stick to single varieties planted in groups big enough to be impressive and related one to another in pleasing harmony or contrast, preferably with plenty of contrast.

Landscape architects necessarily have an attitude toward the planning of home grounds which is different from that of the home owner. One approaches the task coldly, desiring to work out a combination that will meet accepted artistic standards and receive the approval of informed critics. The other, as a rule, finds the artistic problem complicated, for him, by sentimental considerations. He is not merely creating a picture; he is building a home. For the plants in his garden he expects to feel not so much critical admiration as affection. And, as in choosing a wife, his selection oftentimes will not be based upon ideal specifications as to fitness, but will be much biased by his personal predilections.

The architects say that shrubs, for example, should not be selected because we like them as individuals, but chosen entirely because they fit in the picture we are trying to create, while the average owner, who, because of associations, has a liking

ing it from the front, and from the private area. This area will not figure at all in the plans unless the lot is large enough to have a driveway for the delivery of supplies and space which may be devoted solely to domestic service uses.

The private area usually is at the rear of the house, preferably screened from the front and inclosed in a wall of trees and shrubbery, if this is possible, although a fence or lattice high enough to screen unpleasant views may be preferable, especially where sunlight is precious. Here is the real opportunity for garden development, for creating the "out-of-door living room," in which much of the family life may be enjoyed during four months of the year or longer.

It cannot be denied that in developing such a garden inhabitants of our wooded suburbs, veritable "forest people," are at a disadvantage. Often their yards are deeply shaded and the soil is impoverished by the demands of the trees. The front yard being adjacent to the treeless street, is likely to be the only place flowers will grow. Elsewhere they must be satisfied with the trees.

But one whose home occupies a place in the sun, with reasonably good soil to work with, may choose from a wealth of material with which to build a delightful annex to his home. The garden should be planned in relation to the house. It should be easily reached from the living rooms or porch, and its chief features should be visible from the principal windows.

What to put in the inclosed private area of the grounds depends upon the taste of the owner. A bird bath and corner planting of thorny and berried shrubs, such as birds love, will attract pleasant visitors

and perhaps feathered summer boarders.

Outside the smoke zones dwarf fruit trees should always be included in the garden, for their interest, their blossoms and limited but excellent crops of fruit.

A putting green, bowling green,

gardens it may be expected these will dominate. The flower garden will provide interest, exercise and enjoyment for the whole family. It will usually be found that any one who does not love flowers is ignorant of them; acquaintance will bring appreciation, especially in a garden



Foxgloves and Canterbury Bells in the Hardy Border

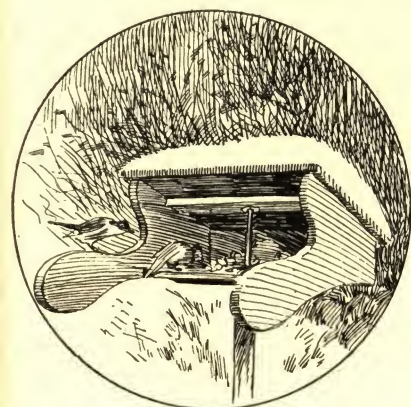
croquet ground, campfire site, or any other feature desired by the owners may be provided to contribute to enjoyment in the summer days and evenings.

And whatever else there is always there should be flowers; and in most

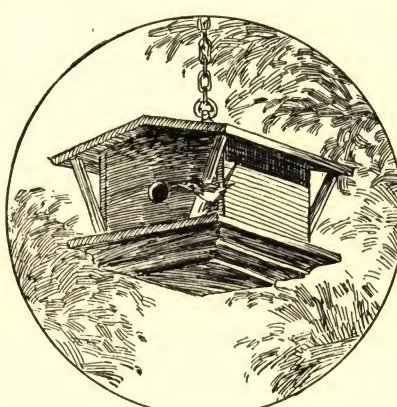
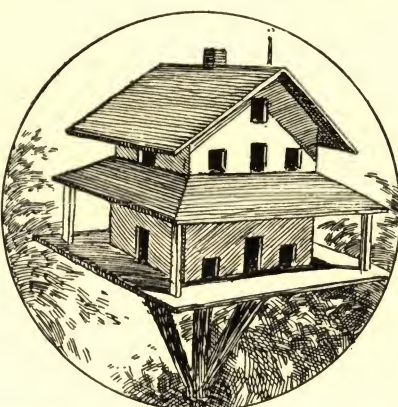
which produces them in quantity sufficient to impress, and where the pleasing arrangement of colors has been studied, with good results.

Color scheme planting in flower gardens, it may be asserted, will do much to intrigue masculine interest.

for hydrangeas or bridal wreath, buys these shrubs first and then looks for a place to put them. This is all right, provided he looks carefully and finds a good place, which is not so hard to do. And if he is not afraid to move shrubs or even trees,



A Feeding Shelter and Martin House



Welcoming Bird Vistors





The Right Sort of Back Fence

should he become dissatisfied with his first placing, he may eventually work out a combination which will wear. It will save a lot of replanting, however, if the location of shrubs is studied well in the first place.

In planting shrubs around the foundation line, the contour is particularly important. It is possible to repeat and accent the strong points of the house architecture in the contour of the shrubbery plantation, and if this is done everyone will appreciate the effect, even though unaware of the cause. The shrubs will seem to fit there and will not be just shrubs, but good-looking shrubs. Anyone with a reasonable understanding of the laws of composition can figure out, with a little study, just where in relation to the house and to each other shrubs with round, oval or conical contours should be placed; and, having figured this out, can then order understandingly the material that fits the plan.

#### Planning for Winter Effect

GARDENS in our climate are planned for the summer, naturally, and what beauty they have in the season of rest must be chiefly the beauty of nature, with little of man's aid. But something can be done in planning to assist winter effect and this should always be considered, especially in the front yard planting. Berried bushes, evergreens and shrubs with twigs and bark that look well against the snow should be included in the composition.

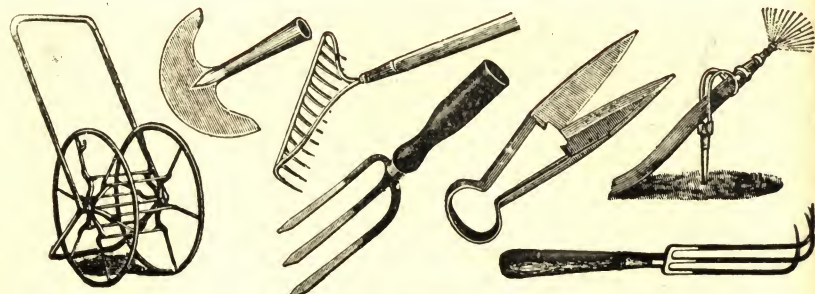
The placing of trees is perhaps most important of all home ground problems. Two purposes should be fulfilled by trees. They should frame and shade the house. They should never hide the house from a guest approaching it, as they so often do when they are planted one on each side of the front door. Enough trees to furnish grateful shade, but not enough to shut out the sunlight and establish perpetual gloom in the home inside and out is the ideal; and the placing should be carefully studied to fulfill these objects.

Whoever has a sunny or partly shaded bit of ground 10 feet square

or more and does not grow flowers in it, is missing a big part of the joy that life offers.

The earliest flowers to blossom, if we except the tulips, daffodils and other bulbs, are perennials, so-called because they live for many years. Once established, these flowers remain as long as they are wanted, and annually we greet them at the same time, in the same place. There are late as well as early perennials; each flower has its season, when it buds, blossoms, and finally exhausts its glory and retires for a long rest. As the sun dial counts the shining hours, the perennials mark the passing of the pleasant days, until the last courageous chrysanthemum succumbs to the approach of winter.

Some perennials must be reproduced by root division, but many may be grown from seed. This, of course, is far cheaper for one who wishes to begin a garden. June is time to sow the seeds of perennials,



Tools of the Right Design

so they may have favorable weather to germinate and a long season to become well grown plants to carry through the winter.

the seed bed, or careless watering washes out the seedlings. Water carefully always and do not let the soil in the box dry out and form a crust. After the seedlings have formed four leaves transplant them to rows in the vegetable garden, giving six inches in the row to each plant. They may be set in their permanent places in the border in the fall.

There are hundreds of different varieties which can be raised from seed and I will only suggest some of those which are easy to succeed with and very much worth having. The Columbine blossoms in June. The scarlet and orange Turk's Cap variety, which is native in the midwest, is almost as beautiful as the famous sky-blue and white Rocky Mountain Columbine. Both may be grown from seed as well as many other beautiful colors.

#### The Pinks and Larkspurs

CANTERBURY BELLS are biennial rather than perennial and must be started each year and carried through the winter in a cold frame for protection. But they are worth the trouble.

Hardy garden pinks are beautiful and fragrant, and with Sweet Williams, a relative of theirs, are almost the hardiest and freest flowering perennials. They blossom in June.

Some hardy larkspurs grow six feet tall and their blue spikes of flowers are imposing. Be sure to get fresh seed, as it quickly loses fertility. Foxgloves are mostly biennial, and like the Canterbury Bells, are best carried through the winter in a cold frame. Hollyhocks are very easy to grow and very wonderful to see. The single varieties are the hardiest. Pyrethrum, or painted daisy, and Coreopsis, a rich golden flower, are vigorous, hardy and easily raised from seed. Begin on these



A Pergola



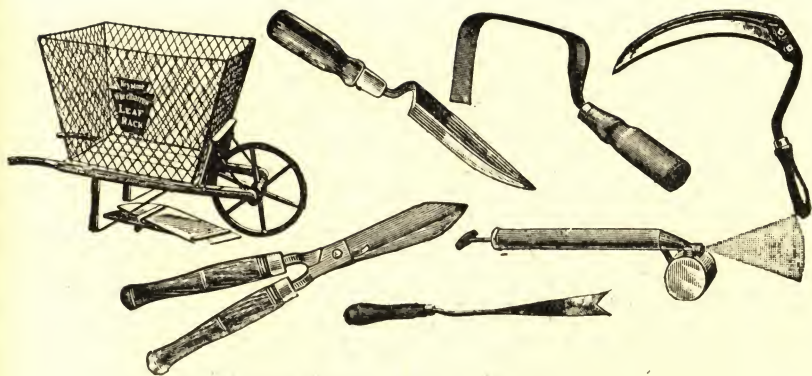
A Hardy Phlox Border

Sow the seed in shallow boxes, in sifted soil, over which a coarse cloth can be laid until they germinate. If you sow them in the open ground, too often weeds take possession of

and you will find them an introduction to a world of enchantment whose attractions will increase as you learn to know it better.

The late tulips offer the most gor-





Take Backache Out of Gardening

geous display of the entire year in the hardy garden. In color, form and certainty to bloom there is no garden subject to compare with them. Coming into bloom about the second week of May in normal seasons, they offer a display of color from the most brilliant to the most delicate and subtle and not offered by any other garden material.

In addition they have long stems and are ideal for cutting. Some of the Darwins will reach a height of three feet under good cultivation, while two feet is about a fair average.

#### The Wonderful Tulips

WHILE the single early tulips need a sunshiny position, the late tulips are even better and last longer if given partial shade. In long lines from six to ten deep or in bold masses or in groups of half a dozen or more interspersed among shrubbery and in the hardy borders they are invaluable.

The Darwin tulips range in color through a wonderful array of pinks and roses and scarlets, crimsons and maroons to almost black, with a similar range in lilacs, violets, purples and mauves to almost black. There are no yellows in Darwins. The Darwin is peculiar in that many of the flowers have an overcast or bloom something similar to bloom on the grape, which gives them a soft character often likened to the pastel colors. Nearly all of them are beautifully shaded in coloring, the edges of the petals being lighter than the center. Many of them have striking blue bases.

The cottage tulips furnish the yellows and oranges which are not found among the Darwins, and the Breeders also have shades of yellow and orange in bewildering combina-



A Water Garden



A Border of Perennials

tions. The Breeders also include that rarest of colors in flowers, browns, and the brown tulips offer some of the prizes for the tulip grower, the shading from buff to

rich mahogany, coffee and brown colorings being singularly rich and beautiful.

To those interested in working out effective color combinations, the late

tulips are the finest material in the whole world of gardening for almost every conceivable shade except pure blue and all manner of combinations of color may be secured by consulting the lists of the dealers.

The Darwins are of such soft colors that mixed plantings are popular, as there is no chance of an inharmonious combination, while the combinations of lavenders, lilacs, mauves, with the various shades of pink and rose offer fascinating possibilities. The more brilliant scarlets and crimsons, usually having rose shadings or softer combinations, furnish the most brilliant display when in bloom that can be imagined.

The culture of the late tulips is simple. Given a well-drained situation, in raised beds, if possible, to insure drainage, they should be planted six inches deep and from six to eight inches apart, the latter giving them better room to develop while the closer distance gives a bet-



A Rock Garden

ter mass of bloom. If they are to remain undisturbed for more than a season, it is advisable to give them the greater distance.

They are best dug every year and replanted. No manure should be used in the soil other than bone meal, which should be dug into the soil when the bulbs are planted.

With the first warm days of spring sounding the earth call, there is a hasty scurrying around for the tools of the gardening cult. A gardener can get along fairly well with four, a spade or spading fork, a hoe, a rake and a trowel. It is even possible to get along without the last, but who wants to?

The art of gardening is reaching such a point of special development that there are tools for almost everything and the wise gardener, by a careful selection, will ease his work as much as possible by securing appropriate working implements.

#### Tools for the Garden

THE greatest labor saver for gardens of any extent is a little wheel hoe. This saves many a backache, does the work thoroughly and has appliances for various purposes which are interchangeable from a little plough share to cultivators of various kinds. It can be used in the smallest garden.

There are numerous hoes of various types and designed for different purposes. The pointed hoe for making rows is a convenient tool. The hoe with rake teeth on the back of the blade is one of the very handiest all-around garden tools for light work there is. It is particularly well adapted for women gardeners. Three toothed cultivator hoes do a fine job of stirring the soil. Scuffle or shove hoes, as they are sometimes called, that can be pushed instead of pulled, permit hoeing rows which are too close to walk between conveniently.

Trowels of various shapes to suit various plants are now on the market. Stiff, sharply angled, small bladed trowels are ideal for splitting off pieces from perennials which have grown so large they need dividing for their best growth. They are fine to set under a recalcitrant carrot or parsnip whose leaves are so



tender they part company from the root, leaving it in the ground.

#### Annual Flowers for Color

**C**OLOR is the soul of the garden. Without it there may be beauty of form, but not joyous, enchanting life. The wise gardener seeks color wherever its best expressions may be found, and his search leads directly to the modern annuals.

Annuals are flowers that spring up from seed, blossom, produce seed, and die in one year. They have distinct advantages over perennials in their small cost, a longer season of bloom and their peculiar susceptibility for use by tenants who desire to beautify rented grounds without making a permanent investment. Some of the favorite annuals which are noted for their beauty and easy growing possibilities are here described with cultural directions. They are illustrated in full color on page 77.

*Poppy, Shirley*—This variety is sometimes known as the Silk or Ghost poppy. The beautiful, satiny flowers range in color from delicate shades

*Verbena*—The verbena is one of the most popular garden annuals and lends itself willingly to many uses. For beds, borders, mounds, vases and window boxes it is particularly fine and is frequently used for an undergrowth to tall plants like lillies. The clusters of showy, and often fragrant, flowers are borne in constant succession from June until frost.

*Snapdragon*—For gorgeous coloring few flowers can match snapdragons. The flowers of the new strains are of very large size, are very fragrant and are produced on immense long spikes, which render them extremely well adapted for cut flowers. They are easily raised from seeds in any rich, sunny bed.

*Bachelor's Button*—This is not a pretentious plant, but will always charm by its simple beauty. It re-seeds itself and may be used for naturalizing purposes.

*Zinnia*—These flowers are of enormous size, thickly set with velvety petals. The plants are healthy, vigorous, branching freely, and make excellent material for groups or cutting.

*Centaurea Imperialis* (Giant Sweet



A Winter Garden



Canterbury Bells



Boxwood



Boston Fern



Kumquats

of rose, apricot, salmon pink and blush, to glowing crimson, all with white centers.

*Delphinium* (Annual Larkspur)—These handsome larkspurs are very effective in borders and planted amongst shrubs. The graceful spikes of bloom are much valued for vases. They continue long in bloom.

*Carnation*—The carnation has long been prized as a hardy border flower, and it certainly deserves all the praise lavished upon it. Being hardy, free-flowering and easily grown either in flower-beds, borders or pots, it is one of the most valuable and beautiful of our summer flowers and a favorite with everyone. Plants raised from seed bloom more profusely than propagated plants, and are therefore to be preferred.

*Nicotiana Affinis*—A gem for bedding. A most showy and profuse bloomer, giving a continuous display of waxy white flowers right through the summer and autumn. They commence to bloom a few weeks from sowing.

*California Poppy*—The state flower of California. A bright, free-flowering plant of low spreading growth, with finely cut silver foliage. The poppy-like flowers in pure shades of yellow, orange and crimson are produced from early spring until frost.

*Petunia*—For freedom of bloom, variety of color and effectiveness, these have no equal. If only a little care is bestowed upon them, Petunias will produce their handsome, sweet-scented flowers in their delicate and gorgeous colors throughout the whole summer.

*Cosmos*—This beautiful annual is one of the most showy and useful of garden plants. The plants are very bushy and compact, and the flowers borne on long delicate stems are similar to single dahlias. The foliage is very finely cut.



A Green Bower in the Sun Parlor

*Sultan*—This beautiful class is undoubtedly the finest of all Sweet Sultans for cut flower purposes. The beautiful, sweet scented flowers are borne on long, strong stems; when cut will last for several days in good condition.

*Strawflower*—These are desirable in many places where an immense amount of vine is wanted quickly. Most sorts are good for twenty to thirty feet in a season, and the blooms of some are quite striking and handsome. With many sorts the fruit is unique, ornamental and often useful. The small fancy gourds are excellent toys for children, while the larger gourds may be used as dippers, sugar troughs and bowls.

*Marigold* (*Tagetes*)—In late summer where many bedding plants are past their prime, Marigolds afford a wealth of color that is simply invaluable. The African varieties produce large, self-colored blossoms on tall plants; the French are smaller, but the colors and markings are very interesting, some of the varieties being elegantly striped and spotted. The Single French and the Dwarf Single French Marigolds hold the chief place in the class.

*Phlox Drummond*—The Phloxes are the showiest and most easily raised of all the Annuals. We know of nothing which produces such a continuous supply of the most attractive flowers in a most wonderful range of colors. All the tints of the rainbow are represented with all possible variations of stripes, veins and eyes of contrasting shades.

*Aster*—During the last summer and early fall the garden is usually a riot of reds and yellows, so the asters in their dainty and distinct colors as well as their many attractive forms are a pleasing addition. The long stems make them desirable for cut flowers.





Poppy-Shirley



Delphinium



Carnation



Nicotiana Affinis



California Poppy



Petunia



Cosmos



Verbena



Snapdragon



Bachelor's Button



Zinnia



Strawflower



Marigold



Phlox Drummondii



Centaurea Imperialis



Aster





The Garden Gate Opens on a Realm of Peace and Beauty



# Planning the New Home or Remodeling the Old

## *A Complete Review of Possibilities for Small and Large, Single and Duplex, Temporary and Permanent, New and Renewed Dwellings*

PLANNING a new home is the most fascinating of pastimes. All the joys of the perfect dwelling are to be had by means of a pencil, a piece of paper and a few marks showing the outlines of the desired home. One needs to be neither architect nor artist to picture to his own satisfaction this imaginary dwelling.

But when the home planner gets to the point of including the imagined conveniences and comforts in a plan from which a contractor can actually build a house an untold mass of technical details must be taken into account. The daily household needs of the entire family to be accommodated in the new home must be carefully studied and provided for. The cost of various features in relation to the total amount one can afford to invest must be considered before one finally decides either to reject them or put them in the plan. It is only the exceptional home planner who can gratify every desire for the new dwelling regardless of cost. In most cases there is a rigid limit of expense which makes it necessary to choose what one regards as most necessary for the new house, sacrificing many things recognized as desirable but not absolutely essential.

The pages which follow show scores of house plans together with pictures of the houses built from them. These are not presented in the belief that any person planning a new home will find a ready made design completely fitting his needs. The truly homelike dwelling is the one built around the habits, the tastes and the necessities of the household living in it. No two families are alike and no two houses that truly express their occupants can be alike.

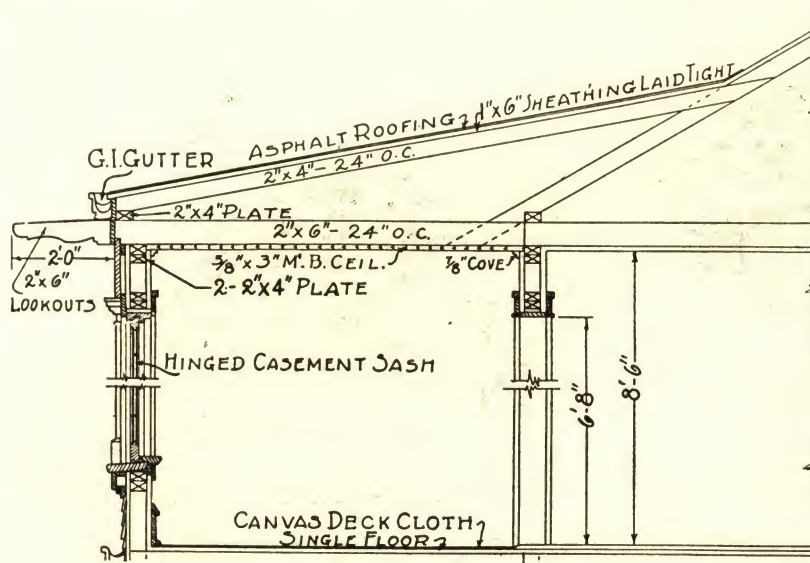
But the successful home planner will study design after design of houses of all sorts, getting an idea as to desirable room arrangement in one, a suggestion on entrance ways in another and from a third a plan for a kitchen or bath room or living room meeting the needs of the household being provided for.

The fact that the home is a workshop as well as a place for rest and recreation must never be lost sight of in making the plans. The designer must take as much care to save unnecessary labor for the housekeeper as the expert factory architect does to make the most efficient arrangement of working forces and machinery in the manufacturing establishment he is planning.

The arrangement of rooms counts for much in the matter of housekeep-

ing efficiency. The housewife must take thousands of unnecessary steps if the dining room is placed too far away from the kitchen. The kitchen is the housekeeper's main work shop in the vast majority of homes where the housewife does most of the home work. Some prefer it small with but a single

kitchen downstairs and the bed rooms above. Many families, however, need and prefer a two story building. Many designs of both types are shown in the pages that follow and should be an aid in drawing up plans for a home. They are designs selected from the best work of architects of national reputation.



Plan of Sleeping Porch Addition Pictured Below

step or at most two to reach any point in it. Others feel cramped in so small a room and desire a more spacious work room. No fixed rule can be made

### Remodeling the Old House

MANY families, however, especially in this period of high building

little expense, to make it more homelike and livable if it does not now answer their needs.

According to present day habits of living, the commonest faults of houses built many years ago is their lack of provision for fresh air. Bedroom window openings are apt to be few and small. Living rooms also are often dark from lack of windows. Less efficient heating facilities in previous generations combined with the belief that the night air carries many ills made house builders of former days go to the other extreme from the modern notions as to sun parlors and sleeping porches.

But outdoor parlors and porches can be built on an old house without much difficulty. Often a dilapidated looking old building can be completely transformed at moderate expense by a few such additions. Planning such a transformation and then accomplishing it is often as great a delight as the building of an entirely new house and in many cases the final result is fully as satisfactory.

The method by which one such sleeping porch was added to a house is shown in the illustration and cross section diagram on this page. The pergola effect given by the extension of the roof beams for two feet beyond the line of the roof and the suggestion of pillars in the special framing of the casement windows make it an attractive addition to the architectural effect.

A porch of this design can be added with almost no alteration of the main structure of the house beyond the enlargement of a window to change it to a door. The roof is made by laying 2 inch by 4 inch beams from the roof of the main house to the outer wall of the sleeping porch. A sheathing of 1 inch by 6 inch boards is laid on top of these and a composition roofing laid on top of the sheathing. The ceiling is supported by 2 inch by 6 inch beams laid horizontally from the line of the eaves of the main building to a pair of 2 inch by 4 inch plates over the casement windows. There is a single floor covered with deck cloth. The casement windows open outward and are hinged so that they fold together and give a minimum obstruction to air and view.

Sleeping porches not only add to the beauty of a home, but they are so very healthful that there should not be a home in the country without them. In many cases 'double-deck' beds are used.



A Sleeping Porch Addition to a Small Home

in this, but the needs of the ones specially concerned should govern.

The bungalow is a great step saver, eliminating countless trips upstairs and down between the living room and

costs, have no immediate prospect of building a new home. For them the problem is to make the most of what they have. If they own an old house they can do much, at comparatively



## New Stucco Dress for Time-Worn Houses

IN many frame houses still sound structurally the outside framework has begun to show a weather-beaten effect which no amount of paint will make appear like new. For them the solution is often found in stuccoing. Stucco is a special mixture of cement used as an outside wall covering. Almost unbelievable transformations can be made by this means.

One house which was beginning to show its age in this manner is shown at the top of the page. Foundations and the main framework were almost as good as new, but the outside was beginning to show the effects of long weathering and generations of use. It already had a large and inviting front porch and a more plentiful supply of windows than most old-fashioned houses, so that no structural changes were necessary. It was a comparatively simple task to cover the clapboards with tar paper, tack laths on top and then cover the whole with stucco.

The front porch had a brick foundation which was still sound, but the wooden balustrades, cornice and flooring needed replacing. To accomplish this stone steps and a cement flooring were substituted for wood, and an unobstructive iron railing was put in place of the wooden balustrade. Plain, slender pillars for the ones that had previously supported the roof. The cement and iron effect harmonized better with the stuccoed walls than a wooden porch, but the inviting rambling effect of the old-fashioned house and porch were not lost in the change.

ANOTHER example of the change wrought in an old frame house by the use of stucco is shown in the illustrations at the bottom of the page. The change was especially successful in this case because the

lines of the eaves and the porch pillars were too massive for a frame house, but harmonized excellently with the heavier appearance given the walls by the stucco.

The view of the house before it was stuccoed shows a workman engaged in the beginning of the process. The boards binding the corners of the house have been removed and some of the sheathing on which the laths are tacked is shown in place at the right above the porch. The workman on the porch roof is putting on the tar paper over which the lathing is placed. When the lathing is on, the stucco, a mixture of cement, sand, gravel and water, is spread over it.



An Old But Sound House Before Stuccoing



The House Above Transformed by Stucco Coat

Three coats of stucco are usually needed for the most lasting results, although two coats are often found sufficient where the wall on which it is placed is firm and not likely to cause cracking because of settling. The first coats are put on much like the plaster on the interior walls. If

a rough effect is desired coarse gravel is mixed with the stucco for the final coat and then spattered onto the wall. A great variety of effects may be obtained by the use of different varieties of gravel and various colorings of the stucco cement.

In the remodeled house shown below the wooden steps were replaced with cement ones held in place by a plain cement coping, the plain solid lines blending well with the general effect of the stuccoed house.

One important advantage of the use of stucco is the big saving in maintenance over the frequent painting required to keep a frame house looking well. Even when white stucco begins to gray with age it still looks well. If in the course of years cracks begin to appear these can be filled with cement and a new outer coat put on at moderate expense, making the house look once more like new.

The stucco house has surely come to the front of late. There was formerly a great demand for brick houses as they were thought to be the most durable as well as the most fashionable. It is not safe to say that the stucco house has come to surpass the brick in popularity, but it is found to be equally popular. When combined with a green roof, the stucco house is particularly attractive. Suburban homes and country houses of today tend largely toward stucco.

Stucco houses may be chemically treated, making them look almost new.



Before—Another Example of Modernizing a Frame House with Stucco—After



# Making Over Old Houses

THERE is no keener joy afforded by the art of home-making than that given by taking some ramshackle old house of a previous generation and making it conform to the needs of the present day. Many of these houses of a former day were built on a framework intended to last for ages, and even today will outlive many of the structures going up over night and built for quick sales.

Of course not all old houses are still sound in structure after many years of use. The person intending to remodel will usually profit by calling in an architect, builder or similar expert to make a careful examination of the foundations and principal beams. If they are found to be in good condition the possibilities of remodeling are almost unlimited.

One such transformation of an old homestead into a modern house of very distinctive design is shown in the three illustrations on this page. The old house is shown in its original condition in the photograph at the top of the page. Despite its age it is evident that it was a well built house, with the main framework still apparently solid. It is a structure of the type which may be found frequently in many of the older settled sections of the country, too worn by the years to be revived merely with paint, yet too full of possibilities for future usefulness to be abandoned.

The manner in which the question was answered in this case is shown in the illustration in the middle of the page, where the work of reconstruction is shown in progress and at the bottom where it has been completed. The addition of a porch around two sides of the house, with the main roof extended to cover it, and the construction of a dormer in the extended roof to permit more space and light in the upper floor, are practically the only structural changes. Yet no one seeing the remodeled house would note any resemblance to the original building.

Part of the changed appearance is due to stuccoing the walls. Even



The Unpromising Nucleus of a Modern Home

more important in the alteration is the change in the general outlines due to the porches and the extensions of the roof.

A first step in this remodeling was the construction of a retaining wall around two sides of the house and the width of the intended porches distant from it. This served as a foundation for the pillars supporting the two porch gables extended at the end of the house to furnish a partial covering for that part of the porch and to support the extension of roof over the porch extending across the entire former front of the house. The pillars, broad at the base and tapering slightly toward the top give a substantial and dignified appearance to the building. The row of six of these pillars across the former front of the house makes an impressive effect with the white of the stucco covering contrasted against the green of the trees and lawn.

One of the dormers which were added is shown in the illustration of the building with the remodeling in

progress, and the other is shown in the picture of the completed work. These add materially to the room space on the second floor and also



Ready for the Stucco Coat

serve to give variety to the lines of the roof.

The center photograph, showing the work in progress, illustrates the manner in which a building is prepared for the stucco. In this case a

wire mesh has been covered over the lathing to hold the stucco. This has the same effect as iron reinforcing in concrete construction. It aids in preventing cracking, giving a certain amount of flexibility to meet the strains put upon it.

The terracing done after the house was remodeled has no small part in the successful effect achieved. The ground around the house was graded up to within a few inches of the top of the retaining wall, making it appear merely a narrow curbing around the edge of the porch. Had this not been done the effect of the broad based pillars would have been lost and the porches would have had a much less inviting appearance.

There are certain matters of detail which it might be well to touch upon when on the subject of remodeling old houses. If the house did not formerly suit the owner, and the needs of his family, he has an excellent chance to improve this when remodeling. If the home heretofore lacked a sleeping porch, a bedroom which was too small, a cellar which was not dry in all kinds of weather, all defects may be readily improved.

In a well-planned house, the cellar is not regarded as an apartment of no consequence. It is, in fact, one of the important rooms of the house, and one that greatly concerns the comfort and health of the family. It should, therefore, not be built so low as to exclude free standing room in all parts—under beams, water and heating pipes. It should be carefully constructed, and well lighted. The bathroom is the room

which is most often added when remodeling an old house. Care should be taken so that room may not be too small. Many persons build their bathroom just large enough to accommodate the fixtures.



The Finished Transformation



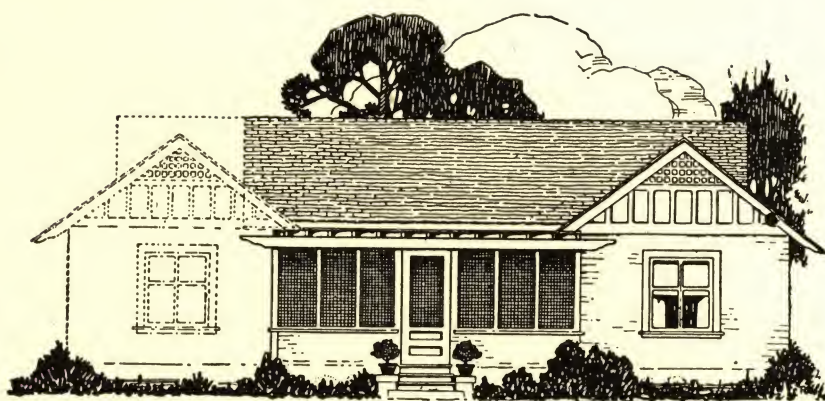


Fig. 1—A 3-Room House to Which Two Bedrooms and Bath May Be Added

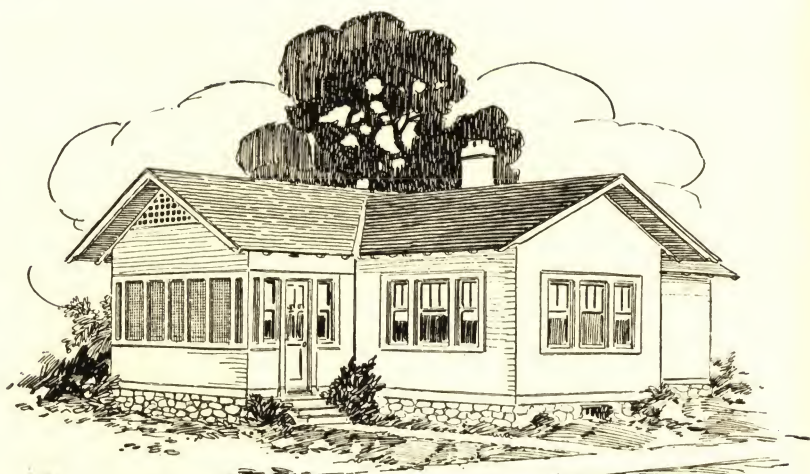


Fig. 2—A 4-Room House Designed for Expansion to Six

## Small Houses Designed for Enlargement

*The Unit Plan Makes the Home Grow with the Family*

THE small cottage is the traditional home in which the young couple starts married life, but as the years go on it is likely to prove entirely inadequate. For this reason many of

are made and fitted in so that they make a harmonious whole is shown in Fig. 1 on this page. The house as ultimately constructed has a front with two gables connected with a pergola like screened in porch. The first of these gables and the porch are constructed first. When the additional rooms are put on the second gable is built.

The drawing at the top of the page shows a house of this sort with several of the additional units in place. The first unit is the one having the entrance door. The wing projecting in front and the wing to be seen on the other side are additions.

The floor plan shows how to the original three room house two bed chambers can be added. The living room is designed to be used as a dining room. The kitchen is directly back of the living room and beside the kitchen is a hall leading to the bath room. The additional bed rooms are built alongside this hall and in the completed house can be entered from it. The bed room included in the first unit is entered directly from the living room.

In the arrangement illustrated in Fig. 2 a central porch and living room together with one wing are included in the first unit. The other wing, shown in dotted lines in the floor plan, is built later. The first unit includes a dining room, kitchen and back porch in addition to the living room and front porch. Two bed rooms with the bath room between them are included in the wing comprising the second unit.

A third variation of the unit house idea is shown in Fig. 3. In this the living room and kitchen are built side by side across the front of the house to form the first unit.

The next unit built consists of two bed rooms on either side of a central hall leading from the rear of the living room. Back of the bed rooms is a divided sleeping porch. A second unit consisting of a pantry and porch may be built at the side of the kitchen.

The unit plan is not only advisable from the point of convenience, but is an asset in planning one's home, small and unpretentious as it may be. After one has lived in his home for a certain length of time, there are countless numbers of things about it all which he would prefer to change if he were making the plans over again. When, then, in the first place, a two-room home is built, and occupied for several months or a year, the owner may decide that he would be more comfortable with two bedrooms instead of one, or a sleeping porch and a bedroom instead of two bedrooms, or some other such arrangement. Perhaps it is merely a matter of a porch. If this is the case, there are a great variety of

porches. If in the beginning the house was designed with a very small porch, with room only for an entrance, it may later be changed to a large screened porch, or a sweeping veranda clear

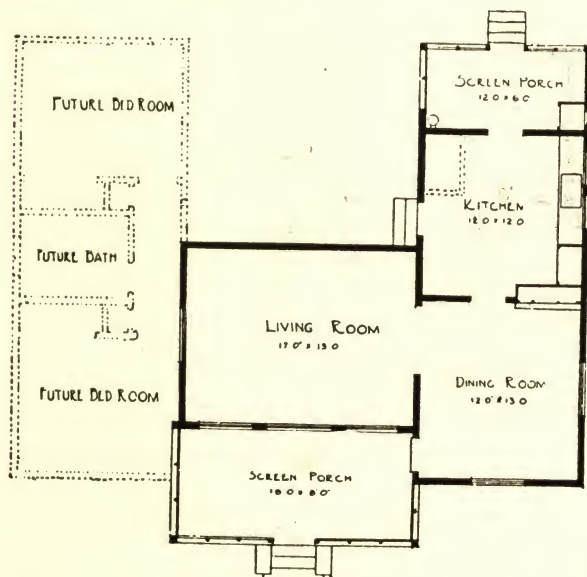


Fig. 1—Floor Plan Showing Possible Addition in Dotted Lines

them postpone owning a home until they are able to build a structure that will be big enough to meet their needs. They prefer to rent a small house for a few years rather than invest in a cottage that they might have to sell, perhaps at a sacrifice, when they desire a larger one.

The unit plan house has been devised to meet this need. It is designed so that additions making it twice and even three times its original size can be put on as they are needed. It not only solves the problem for the growing family, but it is a refuge for the family which can no longer pay the high rents charged in the last few years and is equally unable to invest enough in building to answer its purposes indefinitely. Many such families go on paying large sums for rent because they do not feel justified in spending their resources for a house that will always be inadequate and cannot afford at present to build the home they need.

Under the unit method a completed plan, much larger than the unit first constructed, is first made. It is designed so that two or three rooms of the house can be constructed and used as a complete residence. Then as desired the other rooms included in the plan can be added on.

The manner in which these additions

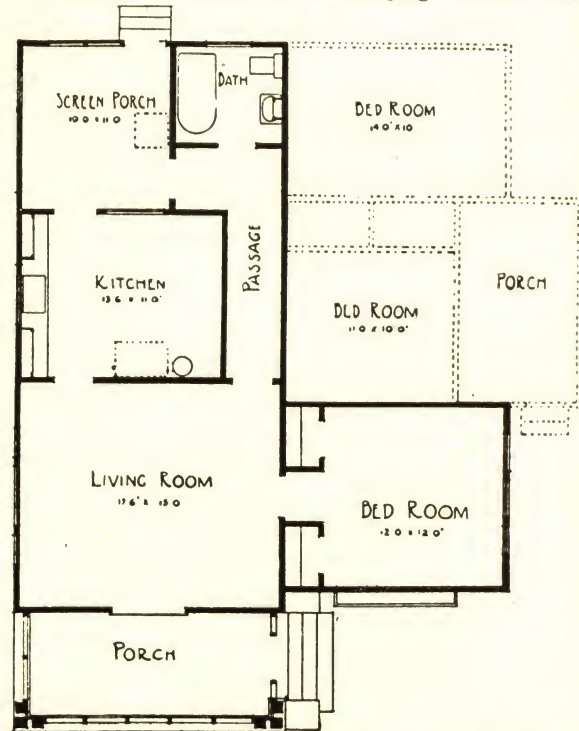


Fig. 2—Floor Plan Showing Possible Addition in Dotted Lines

around the house.

Too many owners build not the type house suited to their particular needs, but perhaps their long cherished idea of a home, in every sense of the word. One must be convinced that it may very well be that his real requirements will not fit at all with the Italian villa or any other preference of his.

The best thing then that an owner can do is to trust his architect exactly as he trusts his doctor or his lawyer. The owner's preferences for this or that kind of a building will inevitably count for something with an intelligent and reasonable architect, but, after all, it is the foot that has to be fitted with the shoe, and all styles of shoes will not fit every kind of foot. Usually the question, "What kind of a house shall I build?" is answered by the owner in this way: "I want a house like Smith's, but I want such and such features, borrowed from Jones's house." The owner should want his own house, and not a friend or a neighbor's. Each family has its own mode of living, its own particular circle of friends, its own special requirements.

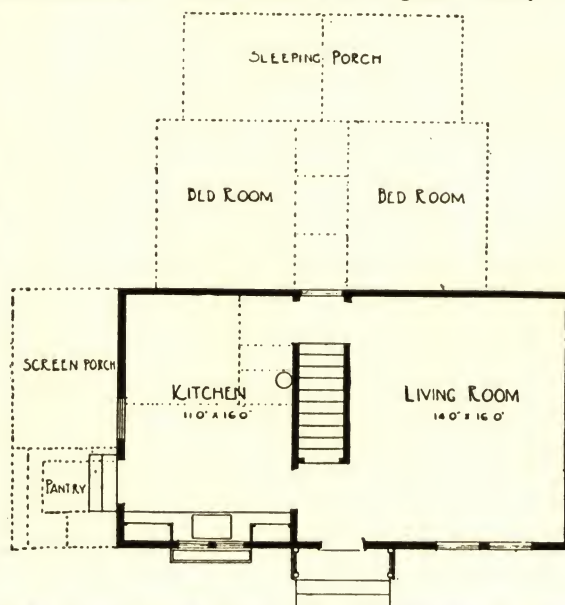


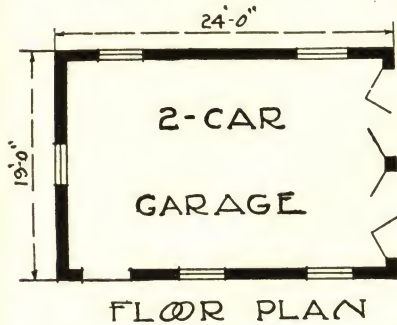
Fig. 3—Two Rooms Which May Be Expanded to Seven.



# The Garage Is Part of Every Modern Home

**G**ARAGES are now an essential part of most home plans. The problem in most cases is to design one that will harmonize with the house and take care of the car or cars.

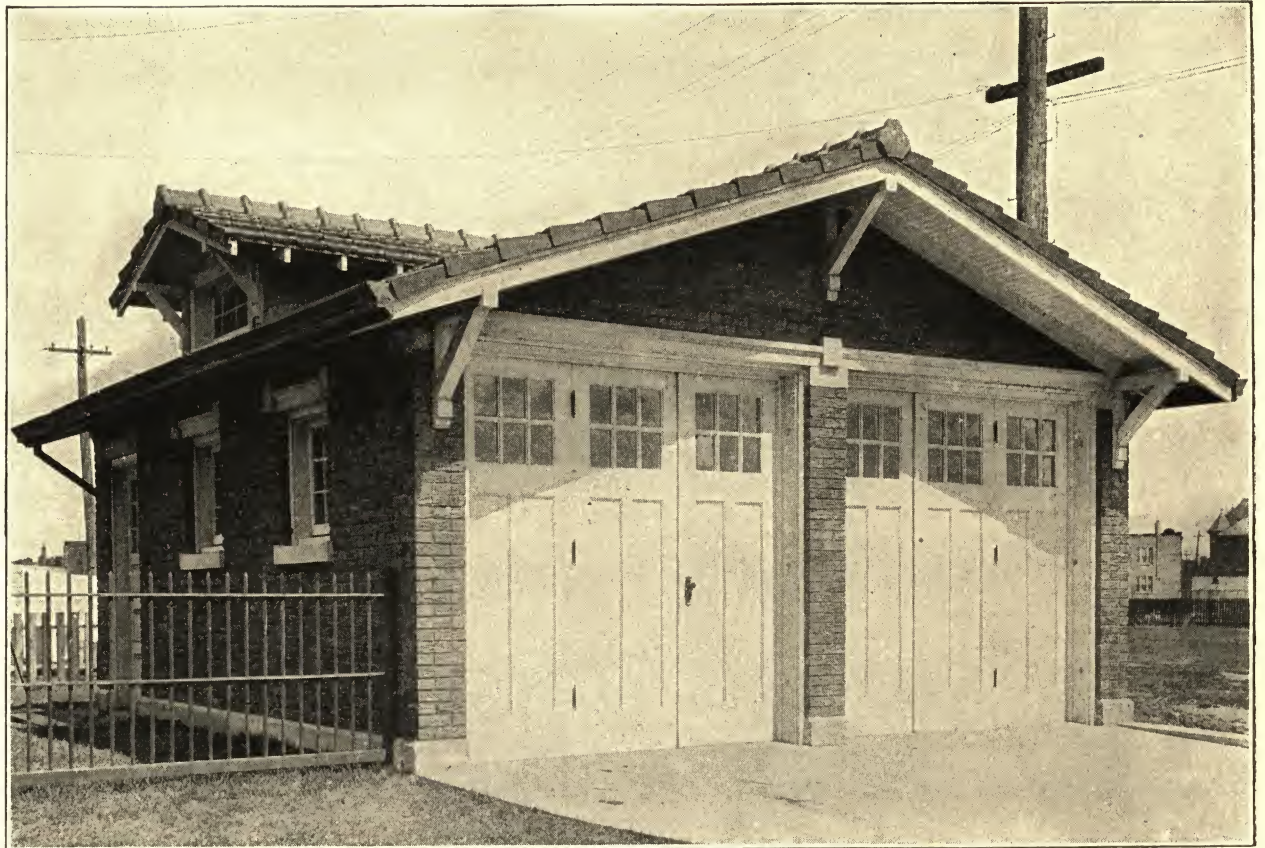
A two-car brick garage attractive enough to be an addition to the grounds surrounding any home is shown in the accompanying illustration and plan. The decided overhang



of the roof, emphasized by wooden support brackets, and a dormer window at the side give it unusually distinctive and attractive lines. The dormer also aids in ventilation, permitting smoke and gases, which are often troublesome in a garage, to escape more easily.

In addition to the folding doors extending across the front there is a door at the side near the rear, permitting easy access from the outside to the rear of the garage. Two windows in each side wall and a window in the rear add to the light and possibility of ventilation, permitting its comfortable and safe use all the year round for making repairs and trying out the engines of the autos.

The building is 24 feet long by 19 feet wide, giving ample room for two machines and plenty of space to work around them when both are in the



A Two-Car Brick Garage with Tile Roof and Two Entrances

garage. A brick pillar in the center of the front divides the entrance into individual entry ways for each machine and adds to the solidity of the structure. On each side of this central pillar are folding doors, each in three divisions. One division is attached by hinges to a frame supported on the central pillar and may be used by a person entering or leaving the garage without swinging back the rest

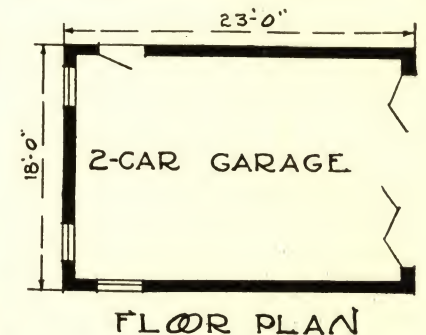
of the folding door. The other two sections of each door are hinged together and may be swung back to furnish clearance for the auto. The upper panels of the doors are of glass, adding to the light in the interior.

The roof of the garage is of tile, the raised edges and heavy capping of the material adding greatly to the substantial appearance of the entire structure. The foundation is of ce-

ment, extending six inches above ground level, where it furnishes a base for the bricks of the wall. For the most substantial construction the floor and entrance drive should also be of cement. The outside trim is of stone.

## A Simple but Substantial Model

**T**HE lower garage shown is slightly smaller and designed on somewhat simpler lines. Its dimensions, as shown in the accompanying floor plan,



are 23 feet long by 18 feet wide. There is a plain tile roof. There are two windows at the rear and a door in one side wall and a window in the other. At the auto entrance in front there are two folding doors, one in three divisions and one in two.

The foundation of cement or cement blocks projects only slightly above the ground, but a foundation effect is obtained by laying the first course of bricks of the walls on end instead of horizontally. The floor and approach drive are of cement.

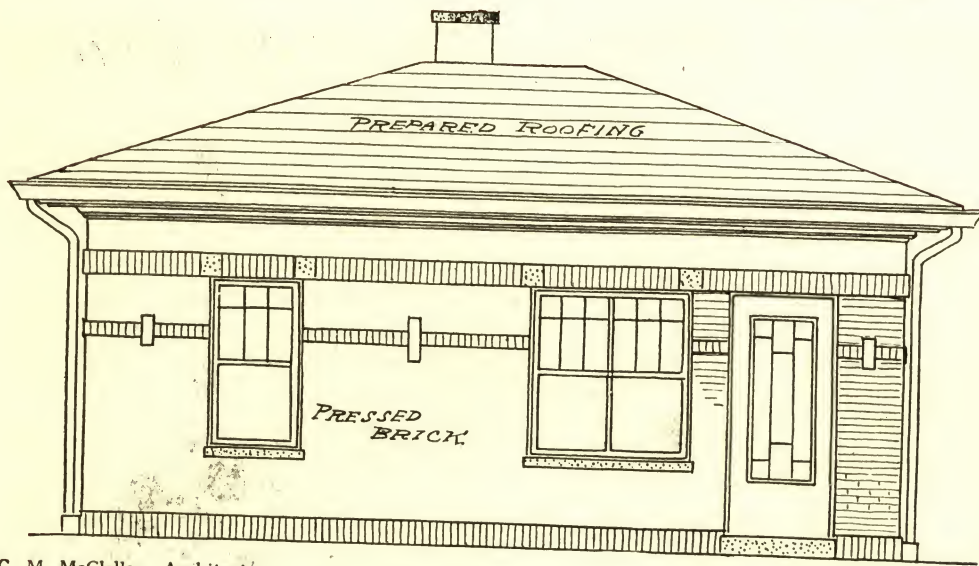
Families often find it to their advantage to build a garage first and use it as temporary living quarters while the house is being built. Both of the garages shown here are substantially enough built and have sufficient provision for light and ventilation to serve that purpose while a permanent dwelling is being constructed.

Any attractive and well constructed garage will add greatly to the beauty of any home site.



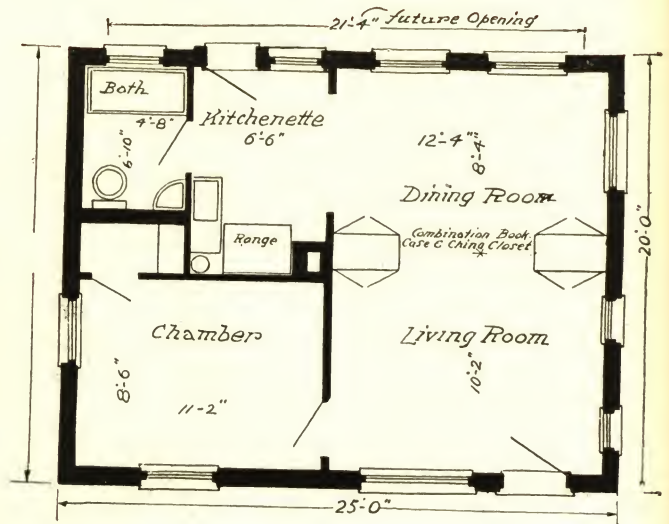
A Simpler but Most Substantial Two-Car Model





G. M. McClellan, Architect

A Spacious Four-Room Arrangement



## Garloes, the Modern Type of Temporary Home

HIGH rents and the high cost of building have brought forward a new type of building, the garlow, which has solved the housing problem for large numbers of families. The name "garlow" is made by combining bungalow and garage, and the structure is all that its name implies.

Designed as a two-car garage, so far as the main structure is concerned, an ingenious use of partitions, which may be made of plaster board, turns the garlow into a three or four-room house with all modern conveniences. It will serve as a comfortable dwelling until the owner is ready to build his house, and after the completion of the main residence may be turned into a garage by removing the partition and a portion of the outside wall on one side, which has been so designed as to be removable without injuring the main structure of the building. A second type of garlow, illustrated on the next page, has living quarters attached to the portion of the building used as a garage.

The garlow shown in the illustration above makes a comfortable four-room cottage consisting of a living room, dining room, bedroom, kitchenette and bathroom. Built in cabinets, which provide bookcases on the living room side and china closets on the side toward the dining room, mark the division between the living room and dining room. The two are virtually one room, giving an air of comparative spaciousness despite the modest dimensions of the building. The two rooms are each 12 feet 4 inches wide. The living room is 10 feet 2 inches long and the dining room 8 feet 4 inches, giving a combined length of 18 feet 6 inches for the two rooms.

The kitchenette is arranged as an

alcove off the dining room. It is 6 feet 6 inches wide and 10 feet long, with no part of it more than four or five steps from the dining room. This makes possible a marked economy of work in the preparation and serving of meals.

The bathroom, 6 feet 10 inches by 4 feet 8 inches, is entered from the kitchenette. The bedroom adjoins the living room, from which it is entered. It is equipped with a closet 3 feet 2 inches wide by 4 feet 8 inches long.

The wall on which the dining room, kitchen and bathroom face is the one which will be remodeled for the automobile entrance when the garlow is turned into a garage. It is pierced by four windows and a door, so that little more than the removal of the narrow sections of wall between the present openings will be necessary to make the change.

THE design shown at the bottom of the page provides living rooms extending across one entire side of the building. Partitions projecting a short distance from the walls permit the rooms to be separated or be thrown into one, as con-

venience may dictate.

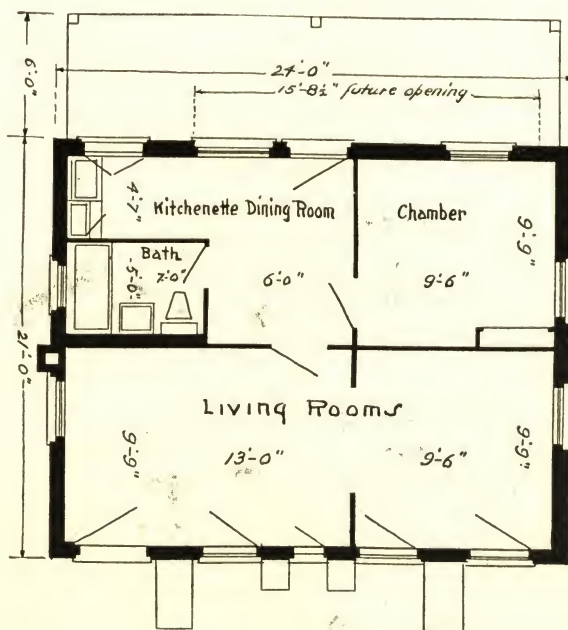
The dining room opens from the living room. The main portion is 9 feet 6 inches long by 6 feet wide, with an alcove 7 feet long and 4 feet 7 inches wide serving as a kitchenette. The bathroom is entered from the kitchenette dining room. The entrance to the bedchamber is also through the dining room. The bedchamber is 9 feet 6 inches wide by 9 feet 9 inches long. A built-in wardrobe provides closet space.

A distinctive feature of the exterior is furnished by two brick pedestals beside the two front doors. These may be used as supports for flower-boxes, giving a decidedly decorative touch.

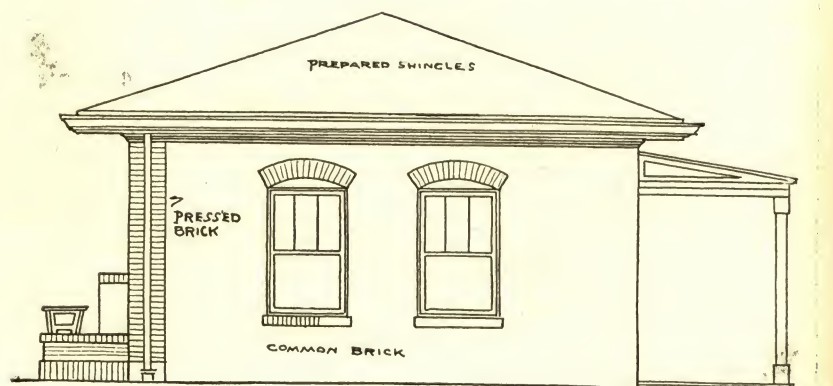
The old saying that the human race is growing "smaller but wiser," certainly holds true when it comes to the question of garloes. This new type of temporary home is certainly a wise move for a great number of home builders. It is an idea which has taken deep root among the newly-weds of the country, as well as solving the housing problem of many families who are in poorer circumstances. Even though not in such dire circumstances, a number of builders do not feel equal to constructing an elaborate home. They can afford to build the garlow however, and after they have lived in it for a few years economizing on their rent, they are able to establish their permanent home and turn their faithful garlow into a two-car garage.

If furnished simply and tastefully, this little temporary home can be made most attractive. In the plans shown for this particular garlow, the living room which extends across one entire side of the building, is perhaps the most striking feature from the standpoint of beautifying. A room of this sort can surely not be furnished with the "Pullman, palace car" type of furniture. Nearly all of the furniture that the majority of people buy is of poor design and workmanship. This is undoubtedly because it is difficult to purchase anything that is really good at a moderate price. But the majority of persons do not demand simple furniture, well made.

The furnishings for the garlow, then, should be selected in a different spirit. The walls could be covered with an oil paint, the surface decorated with an exceedingly simple stencil design. The hangings should be absolutely plain, of a somewhat coarse material, not unlike a softer and more flexible burlap. The dining table may be of oak, oil finished.



Floor Plan of Garlow Below



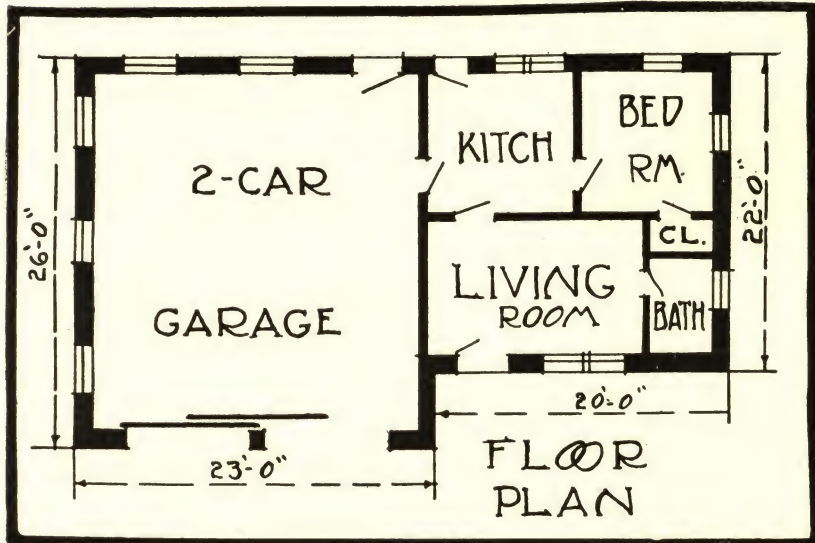
Front—The Porch and Front Doors are Especially Clear—Side





A Design That Preserves the Colonial Spirit with Separate Entrance to Living Quarters

## Garlows as Permanent Dwellings



Floor Plan of Garlow Above

SOMEWHAT more expensive in original cost, but often more economical in the long run, are the type of garlow having permanent living rooms attached. Each of the designs shown on this page gives space for storing two automobiles and provides a living apartment of three rooms and bath.

The garlow illustrated at the top of the page is a frame structure having a maximum frontage of 43 feet and a depth of 26 feet. The living quarters are 20 feet by 22 feet. The

entrance, which is independent of the garage, gives access to the living room. Back of the living room is the kitchen, which also has doors to the garage, to the bed chamber and to the outside at the rear.

Double windows and glass doors in the living room and kitchen add to the amount of light in these two rooms. There are windows in both outside walls enclosing the bed chamber. The bed chamber is also provided with a closet.

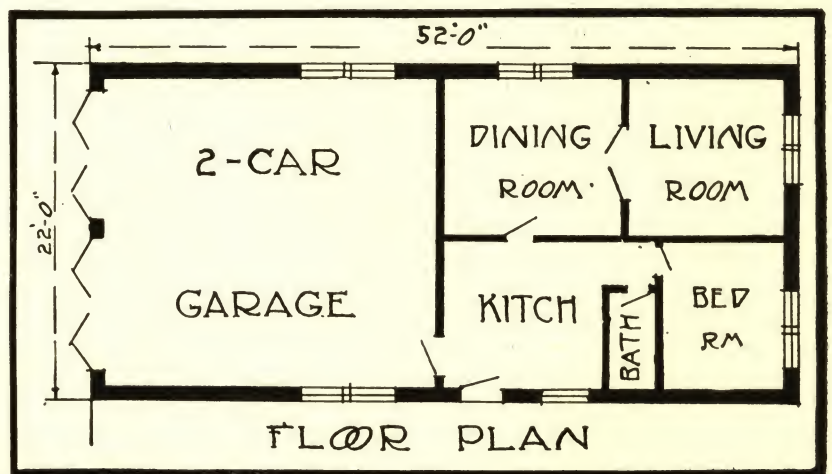
Variety is given the exterior de-

sign by a pergola effect across the front. Double pillars support the pergola at either side of the garage entrance and at the end of the portion devoted to the living quarters. The wing devoted to the living quarters is set in four feet from the front of the garage and a decorative picket fence following the line of the pergola adds to the effect of privacy given the dwelling portion of the building.

A NEAT and solidly built garlow is shown in the illustration at the bottom of the page. The exterior is of brick and stucco. The

entrance to the living quarters is through a pergola at the side. The outside measurement of the building is 52 feet by 22 feet. The interior is divided equally between the living quarters and the two-car garage.

The entrance from the outside leads into the kitchen. A doorway from the kitchen also gives access to the garage without going outside. Adjoining the kitchen, with windows on the opposite side of the building, is the dining room. A short hallway from the kitchen gives access to the bathroom and bed chamber. Double doors connect the dining



Floor Plan of Garlow Below



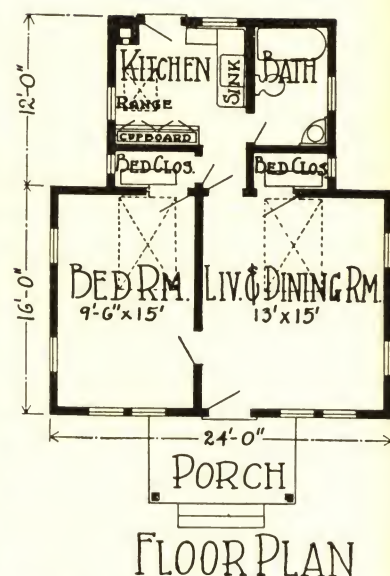
A Brick Model Built to Endure

room and living room.

Garlows of the sort shown here will harmonize with the finest type of house. They may serve as living quarters for the owner's family while the house is being built. Later they may serve as additional living rooms, being especially adapted for use as servant's quarters. If desired, one can also be rented as an apartment, giving the owner additional income.

Garlows are often made especially attractive by the care and arrangement of the lawn drive. A wide cement approach bordered with old-fashioned flowers will present a gay appearance and lend prestige to the most unpretentious dwelling. Much shrubbery is not to be advised, however, on account of time and trouble in removing when the permanent home is built. A few trees may be planted in the front lawn. These will add to the general appearance.





11201-K—A 3-Room Nest of Charming Design. Floor Plan Above.

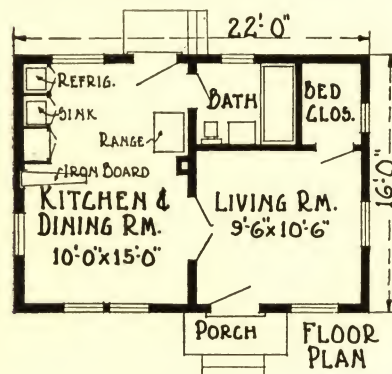
## Inviting Homes of Miniature Compass

THREE room bungalows called bungalowettes, have made it possible for many families in modest circumstances to make a start in home ownership. Since the investment required for building a house of this type is small, and the family occupying it is relieved of the burden of paying rent, a household is often enabled by this means to save enough to build a more extensive home in the course of a few years.

Two well built and attractive three room bungalows are shown on this page. The one in the upper illustration can accommodate comfortably a family of four or five persons in spite of its modest dimensions.

It is set upon posts or a solid foundation. No excavation is necessary. The siding is of plain clap boards and the roof is low and covered with prepared roofing. In front there is a small porch roofed by a gable extending from the main roof. The door from this porch gives access to the living and dining room.

Use of wall beds in the living room and bed room give added space in the daytime. These beds fold into closets when not in use. Each bed closet is provided with an outside window to permit ventilation. By this device the bed room may be used as an additional living room when the bed is not in use. The kitchen and bath room are in a small wing at the back.



11133-K

AN even more modest bungalowette is shown in the lower portion of the page. The exterior dimensions are 22 feet by 16 feet. The sides are built of plain clapboards. A small platform covered by a short extension of the roof serves as an entrance porch.

In reality this is a home of two rooms and a bath as the kitchen and dining room are combined. A wall bed folding into a bed closet permits the living room to serve also as a bed room. Double doors connect the living room with the dining portion of the kitchen.

It is suggested that these small bungalows may be built on the back of the lot in cases where a family expects to build a larger house at a later date. being of frame construction they can

easily be converted into garages when the larger house is built.

They have the advantage of being attractive in appearance with the utmost economy both in space and materials.

In the west, where "traditions" control less than they do in the east, there are found a great number of these bungalowettes, which are even smaller than the bungalows. A house of this design, is about too small to make any great study of style, and for this reason is simple almost to the point of severity. The illustration given here will impress the reader with the fact that it is quite feasible to obtain a satisfactory result by the simplest forms and without a quantity of details. The great advantage of a home of this sort is that

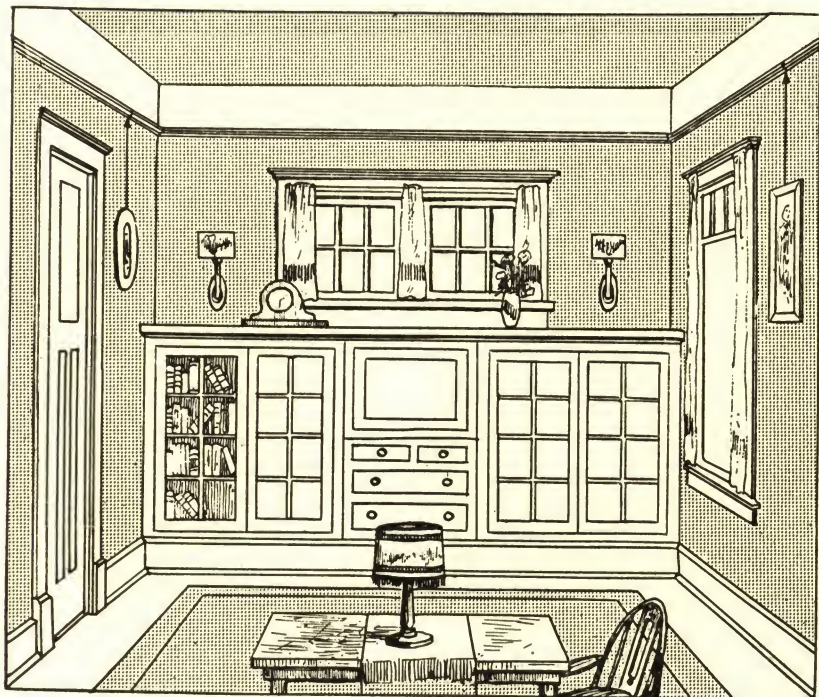
it costs so very little, that many families of the most humble circumstances, are given a chance to own their own homes.

The question of relationship of arrangement is one irksome detail which is eliminated by such a small home. After the first floor has been so carefully planned, and the arrangement decided to be ideal, a number of difficulties may arise so that the second floor will be all out of harmony with the first. Perhaps it will be that too little space has been allowed for the rise of the staircase; that the windows do not come in proper relation when viewed from the outside. Many owners have trouble in this way, and should not suffer such plans to be built even if fond of the admirably arranged first-floor plan.

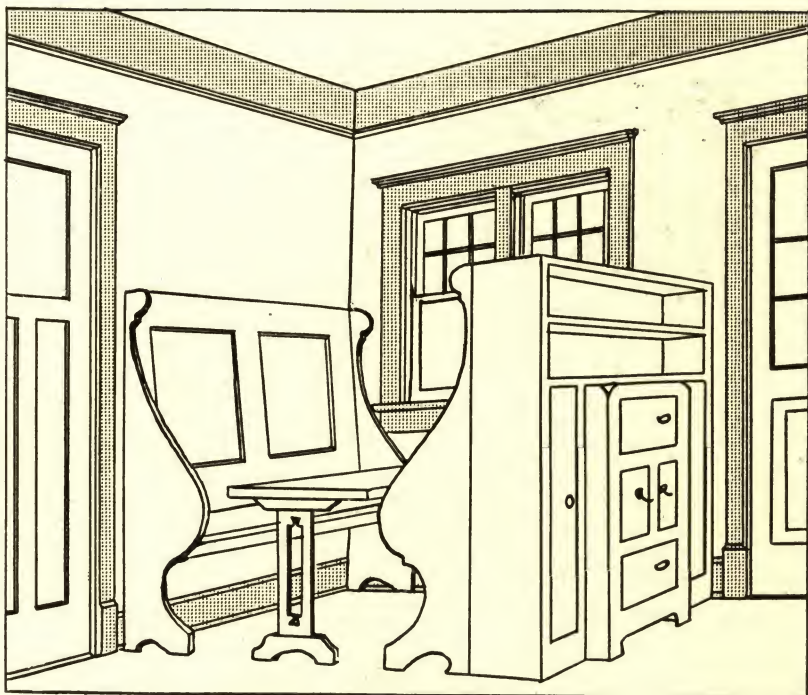


11133-K—The Smallest Possible, Yet Most Attractive Home.





The Living Room with Built-in Bookcases



The Pullman Dining Room

## The Last Word in Compact Comfort

A FULL half of the bungalowette shown on this page is devoted to the living room, which both in size and other features might easily be a part of a much more pretentious home. This room extends across the entire front of the building, with double windows on either side and two large windows in front.

A built-in writing desk flanked on either side by bookcases provides a library and study at one end of the room. The windows above and at one side of the bookcases furnish plenty of light for daytime reading and writing, while lights over each bookcase furnish illumination at night. The illustration at the top of the page showing these bookcases shows also the door to the bed closet, which conceals the wall bed, for at night this room is turned into a bed chamber.

A dining nook with built-in benches and table is another attractive feature. The bench toward the kitchenette, which is back of the dining nook, encloses a refrigerator, as

shown in the above illustration. The high back of the bench also provides for shelves which may be used in the preparation of food or the storage of supplies which need not be placed in the ice chest itself. Opposite the dining nook are a cupboard, sink and range, making it possible to prepare a meal, set the table and wash the dishes afterward with a minimum of steps.

The kitchenette, with a double window at the rear and an outside door, is well lighted and ventilated. The bathroom is entered from the living-room through the bed closet.

The exterior is of frame construction. The outside measurement of the building is only 20 feet by 22 feet, but lattice work carrying the lines of the roof and sides several feet on either side of the front adds to the apparent size of the structure. An open porch at the side entrance toward the rear also gives added variety to the lines of the structure.

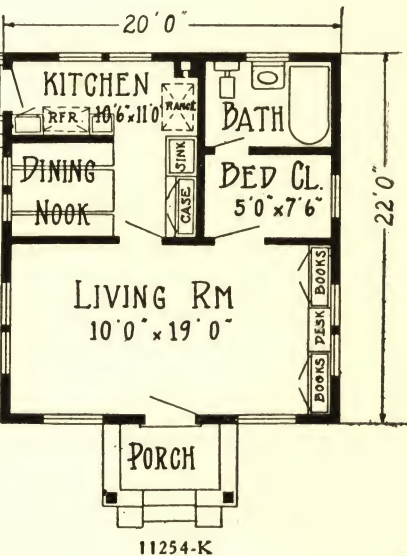
A small but dignified entrance porch is at the front. It is con-

structed of cement blocks with floor and steps of cement.

Between the roof of the front porch and the main roof is a ventilator window. This is an important aid in keeping a low-roofed one story house cool in summer, as it permits the escape of heat accumulated beneath the warm, sunny days. In winter it can be closed to prevent cold air from entering.

In planning such a small home, great care should be taken in the purchase of the site. If possible, a lot should be selected which has enough shade trees to keep out the hot sun, for the very small dwelling will be necessarily a bit warm at best in the summer months. However, too many trees are not advisable either, as they would tend to darken the home, and perhaps shut out the most desirable views.

The correct thing, then, is to build the little home and, if there are



too many trees, have them hewn afterward, when it is sure that they will not obstruct the best window views.

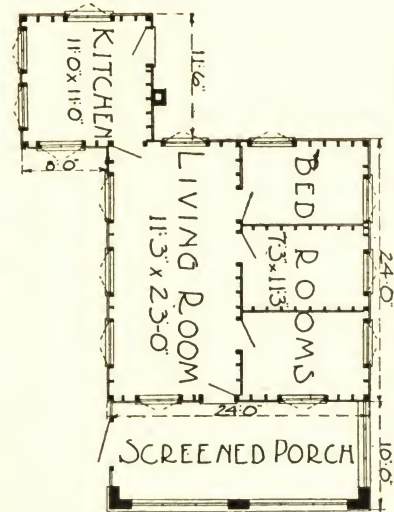


11254-K—The Bungalowette





10501-K—A Summer Cottage in the Woods



10501-K

like the Colonial houses the very simplicity of the lines gives a charm and an air of unpretentious hospitality.

The four rooms of the interior are exceptionally well arranged. The front door opens directly into the living-room, which measures 19 feet 6 inches by 15 feet. Beside the front door is a closet which can be used for coats, hats, overshoes and other outdoor wear. At one side of the living-room is a hallway leading to the bathroom and to the two bedrooms which are on either side of the bathroom. Another hallway at the opposite side of the living-room from the front entrance, leads to the back porch, with a side entrance to the kitchen.

The kitchen is directly back of the living-room, and in addition to the entrance from the dark hallway has an entrance from the living-room. It is equipped with a breakfast nook where many of the meals may be served, while the living-room may be used as a dining room on other occasions. The sink in the kitchen is placed under a window, an advantageous arrangement to give both light and a view in working there. The icebox is placed at the end of the back hallway and may be iced from the back porch.

## Simple Plans That Satisfy

POSSESSION of a summer cottage solves the vacation problem for many families, and if it is well planned for comfort and livableness it will add much to the pleasure of the weeks that can be spent away from the all-year-round home. The design for a summer cottage that harmonizes well with the woods that surround it, and is unusually adaptable to the changing numbers of persons such a cottage is often called upon to accommodate, is shown here.

This cottage consists of a living-room which has windows on three sides so that it can be open to all the breezes that blow, a kitchen which is attached to the main building only at one corner where an entrance to the living-room is provided, three bedrooms and a screened-in porch.

The bedrooms are arranged side by side with entrances from the living-room in the same manner as staterooms open from the cabin of a vessel. The likeness to the staterooms of a passenger boat may be carried to practical advantage into the furnishings if desired. Each berth, un-

der the steamer type, with pails underneath to catch the slops, may be provided. By providing upper berths where needed this cottage is capable of very great expansion so far as the number of persons that can be accommodated is concerned.

The living-room, which serves also as a dining room, is 23 feet long by 11 feet wide and with the screened porch on which it opens can also accommodate comfortably a much larger number of people than would be assumed from the outer dimensions of the house. Basement windows, which open outward, permit the entire space of the windows to be used for ventilation, giving a maximum of the fresh air which is one of the chief attractions of a summer outing.

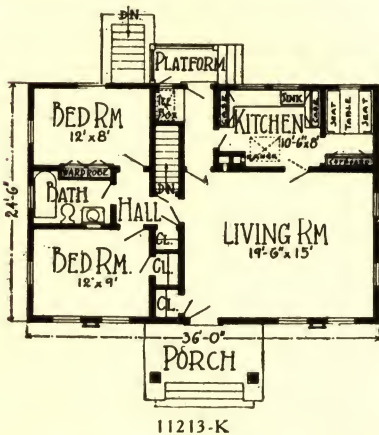
The kitchen, often a neglected feature in summer cottages, is one of the most attractive rooms in this one. It has windows on three sides, and an outside door on the fourth, permit-

ting heat and cooking odors to be blown out and fresh air substituted if there is even a slight movement of air currents. Its semi-detachment from the rest of the house prevents kitchen odors from entering the living-room and bedrooms, while the direct entrance to the living-room at the corner where it is attached to the main structure makes easy the serving of the meals in the living-room.

A rustic appearance is given the interior by leaving the 2x4 studding exposed. This decreases the cost of construction without detracting from the general effect, and as the cottage is used only in the summer months double walls are not essential.

### A Four-Room Thoroughbred

AN attractive design for a simple but comfortably arranged four-room house is shown below. The exterior is plain, almost to severity, built



11213-K

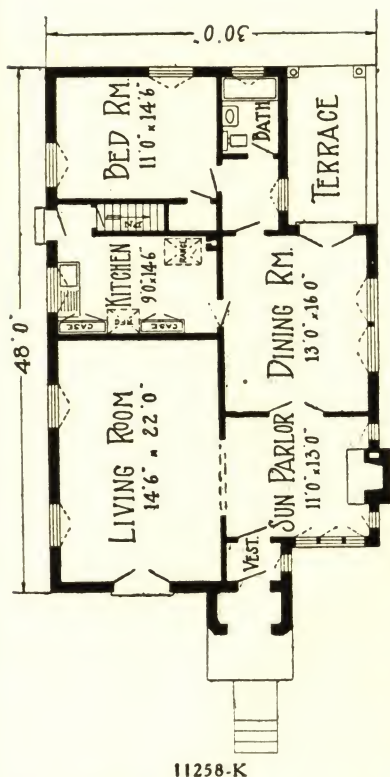
der this plan, can consist of a full size spring covered with a sanitary couch mattress. The spring is fastened to a ribbon board nailed to the wall on two sides of the room. The free corner is supported by a post.

The space under the bunk may be used for the storage of baggage as in a real steamer. Washstands of



11213-K—Good Proportions and Simple Design are Always Attractive





11258-K

A DESIGN for a house of four rooms and a sun parlor that is cozy as well as unusually distinctive is that shown at the top of the page. The round arch of the entrance porch and French doors which open on terraces are features which are especially attractive.

There is an enclosed entrance porch which opens on a vestibule having a doorway into the sun parlor. A window in the vestibule furnishes light and ventilation. A large open fireplace in the sun parlor, flanked on either side by windows, makes it an inviting retreat in winter as well as summer. A wide entrance way directly opposite the fireplace leads to the living room, making the living room and sun parlor practically one. French doors open from the sun parlor into the dining room, the living room being cut off from the rest of the house except through the sun parlor. This separation of the living

room from the activities and possible odors of food preparation and table setting is an advantage that will be readily seen by most housewives, particularly when there are guests.

French doors leading directly to the terrace invite to a stroll through the grounds from the living room, entrance and exit thus being possible without going to the main entrance door.

The kitchen is entered from the side of the dining room and has a door to the outside at the rear. The wall separating it from the living room provides space for the refrig-

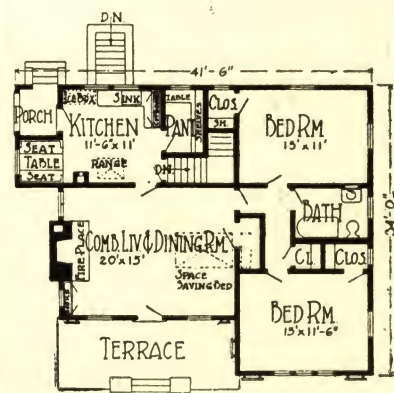
erator and two cupboards. The sink is placed under a window at the side opposite the door to the dining room and close to the cupboards. The dining room, like the living room, has French doors leading to a terrace and also has a pair of large casement windows. Another door from the dining room leads to a rear hallway, giving access to the bathroom and bedroom.

The exterior of the house is of smooth gray stucco, giving a plaster effect. The lines of the roof are well broken up, a unique effect being obtained by slanting forward the over-

hang and increasing its width toward the peak. This tends to tone down the roof lines, which otherwise might give a topheavy effect. The duplication of the main roof line in the roof of the entrance porch adds greatly to the pleasing effect.

#### A Model of Arrangement

ANOTHER four-room home of pleasing appearance is shown at the bottom of the page. A terrace of brick and cement furnishes a roomy approach to the front door. The broad canopy over the front door projects into the line of the roof, giving



11140-K

a desirable accent. The wide overhang and the narrow casement windows are other distinctive details which add to the charm of the design.

The front door opens directly into the large living room, which serves also as dining room, library and bedroom. An open fireplace with a bookcase built in at one side makes an attractive library corner, while a wall bed folding into a closet at the opposite side of the room may be opened at night and convert it into a bedroom.

There are two other bedrooms, which are grouped on either side of the bathroom. A hallway entered from the living room gives access to the bathroom and the two bedrooms.

11140-K—This Low Straight Roof Is Unusual

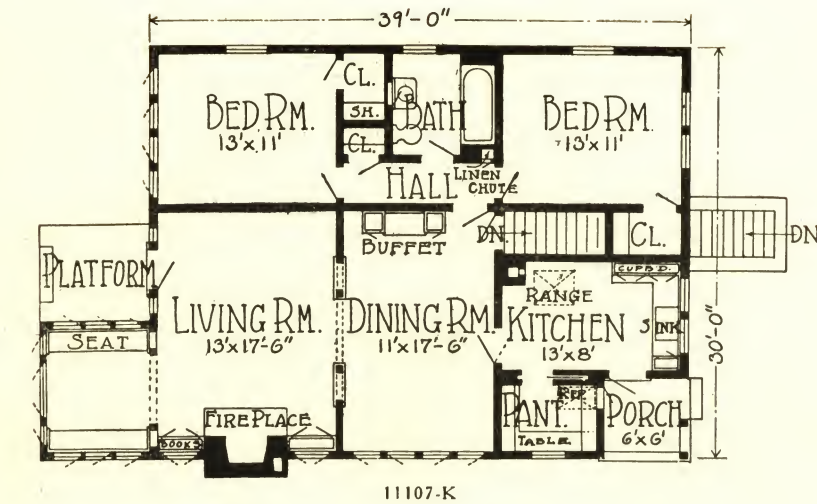


ALTHOUGH it appears small the house here illustrated has five good-sized rooms, a sun parlor and a bathroom. The fact that the sun parlor projects in front from the main part of the house and there is an extension to the rear that is not apparent from the front of the house helps to conceal the real size of the structure. Exclusive of the sun parlor the outside measurement is 30 feet by 39 feet.

The floor level is only a few inches above the ground, which adds to the longness of its appearance. A wide cement platform provides the approach to the front door, which opens directly into the living-room. The living-room is 13 feet wide by 17 feet long. Across one end is a large open fireplace with built-in book cases on each side. Adjoining the fireplace and book cases is the sun parlor, which is virtually an extension of the living-room. Window seats in the sun parlor add to its inviting and comfortable appearance, the two rooms combined giving a spacious and attractive effect at all seasons of the year.

A wide entrance way leads from the living-room to the dining room. A series of casement windows extends along one end of the dining room and at the opposite end is a built-in buffet. A swing door leads to the kitchen, which is especially well arranged.

On either side of the doorway between the dining room and kitchen are the pantry, which has an outside window, and the range. The pantry has a refrigerator, which is iced from



## *A Snug but Spacious Small Home*

the back porch, cupboards and shelves and a table beneath the window at which much of the food may be prepared. The pantry may be closed by a sliding door.

The sink is placed beneath a large double window facing to the rear which in the location shown in the illustration gives an attractive view of woods. When possible the sink should be located under a window, both for the additional light and because hours spent there by the house-

wife are much more pleasant if she can observe a pleasant view than if she must face a blank wall. Care must be taken in doing this that the windows over the sink are of dimensions that will fit the sink. The average sink is apt to be too low for most women, forcing them to stoop in a tiring position while they are at work. They may be made higher by the use of adjustable legs, but if the windows have not been planned for the added height this may be

either impossible to do or the window frames must be changed at an additional expense.

In this plan, too, the pantry table, where much of the kitchen work not done at the sink and stove will be performed, is also placed at a window.

The two bedrooms and bathroom have been placed on one side of the house connected by a short hall which opens into the dining room. Each of the bed chambers has a large closet, and there is also a linen closet opening from the hall next to the bathroom entrance.

The bathtub is enclosed on three sides by the walls of the bathroom. By the use of a rubber curtain suspended from a curtain rod on the fourth side it may be used as a shower bath.

The problem of building a convenient, though small home within a given figure, is not easy to solve, as the limitation of cost arises at every turn and makes improvements that are suggested from time to time impracticable. The owner of this little dwelling threw himself into the spirit of evolving a quaint and pretty house at a small figure. It is an excellent example of careful planning and good judgment. The straight, plain roof and the chimney at the right, and on the outside of the house, are the most distinctive features. They lend a particular quaintness.

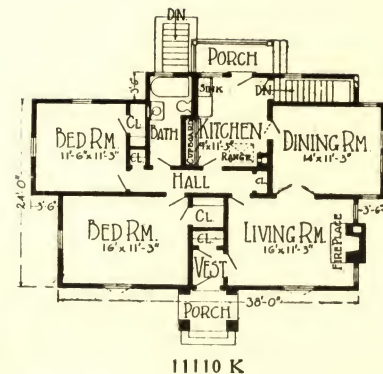
Bright flower-boxes under the windows could be added, as well as a flower garden in the rear.







11110-K—This Unique Entrance Is a Pleasing Feature



11110 K

The front door opens into a large living room 13 feet wide by 19 feet 6 inches long. A wall bed which is folded into a bed closet when not in use permits the living room to be used as an additional bedchamber when necessary. A wide entrance connects the living room and dining room. Another door from the living room opens into a small hall connecting the bathroom and the two bedchambers. The dining room also has a door into this hall.

The kitchen is placed back of the dining room in a projection from the main part of the house that permits windows on three sides. The arrangement of the kitchen is notably convenient. The sink is placed under windows at the right of the entrance to the dining room. A cupboard is placed along the wall to the left of the sink. The range is at the left of the entrance, with the entrance to the pantry at the side of the range. The pantry contains shelves, a refrigerator which is iced from the back porch and a work-table under a window for the preparation of food.

This house is also well provided with closets. There is a closet in each of the bedrooms and a linen closet in the hallway adjoining the bathroom.

Hominess is the keynote of this little dwelling, and it is one of the typical designs that are in public favor just now. Simplicity of design, without lending severity, conveys an air of unpretentious hospitality.

Every inch of space has been utilized to the best advantage and much attention has been given all the details which go to make a home livable.

BUNGALOWS in the modern sense were unknown in Colonial times, but an effective adaptation of the Colonial style of architecture to the bungalow is shown in the five-room, one-story house illustrated at the top of the page. The pillared entrance, the wide white siding and the shuttered windows with small panes provide details that are distinctively Colonial, yet blend well with the roof lines of a single story dwelling.

The interior also is a convenient combination of Colonial and more modern designs. Instead of the traditional long central hallway the front door opens on a small vestibule, which in turn opens on the living room. A second door in the vestibule opens on a coat closet.

An open fireplace of brick is at one end of the living room. Double doors lead to the dining room, which projects far enough beyond the line of the front part of the house to permit windows on three sides. Another door from the living room gives entrance to a transverse hallway which connects with the kitchen, the bathroom and the two bedchambers.

The arrangement of the rooms gives opportunity for abundant closet space. In addition to a large closet in each bedroom and the coat closet off the vestibule there are closets adjoining

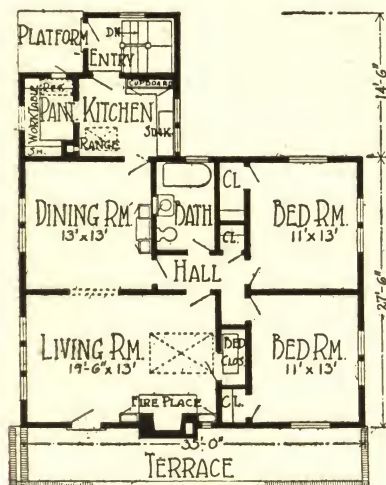
the bathroom and the kitchen in the back hall. The location of the kitchen in this plan is unusually good. It has a swing door to the dining room, a door opening on the back porch, one to the cellar stairs and one to the hallway connecting with the other rooms. Thus any room in the house may be reached from the kitchen by a few steps without going through any other room.

While the floor plan shown separates the living and dining rooms, an attractive variation may be made for families in which it is convenient to have a combined living and dining room by omitting the wall between these two rooms. A spacious room having a maximum extension of 19

feet 6 inches in one direction and 22 feet 6 inches in the other can be made in this way.

#### Roof Lines Lend Distinction

A STRIKING use of a chimney and a roof lines to give individuality to a house is illustrated in the design for a five-room bungalow at the bottom of the page. The chimney, which accommodates a large open fireplace in the living room, is stuccoed in a white plaster effect. A panel of bricks laid in a pattern is left exposed, relieving the plain whiteness of the rest of the chimney. A brick terrace which serves as an entrance porch extends across the front of the house.



11195-K



11195-K—A Note of Distinction Is Given by This Clever Chimney





11100-K—The Small Windows Give a Pleasing Effect

## Models of Livable Convenience

A LIVING room that extends across the entire front of the house is a notable feature of the attractive five-room bungalow shown at the top of the page. An open fireplace and a generous provision of windows on three sides add to the pleasing character of this room.

The dining room opens off of the living room through a wide entrance

roof, which emphasize the width and disguise the extra length.

### A Dignity Unusual

A BUNGALOW which has an impressive dignity not usually found in a small house is shown at the bottom of the page. The pillared entrance porch and the pergola porch at the side aid in giving this effect. In the home illustrated the natural advantages of the site add greatly to the commanding appearance of the structure. The high terraces, the long flight of cement stairs leading to the front door and the retaining walls of cement blocks add to the apparent size

of the building. The flower-boxes outside the windows and around the pergola porch aid in softening the outlines.

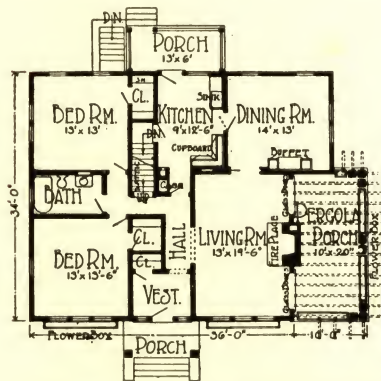
The door from the entrance porch opens on a wide vestibule which is continued in a hallway running through the house to the kitchen at the rear. The living room opens on this hall, and on the opposite side it gives access to the bathroom and the two bedrooms. The living room has a large open fireplace on each side of which are French doors opening on the pergola porch. At the end of the living room is an entrance with a sliding door leading to the dining room.

There is a direct entrance through

a swing door from the kitchen to the dining room. A porch at the back gives the kitchen an outside entrance. A cupboard occupies the angle of wall between the door to the dining room and the hallway. The bedchambers are provided with closets of more than average size. They are also exceptionally well lighted and ventilated, each of them having four windows.

This bungalow has what most houses of this type lack—a large attic.

Taken altogether, this attractive home has been ideally planned, according to light, ventilation, convenience and beauty. The architect must have had some beautiful spot in California in mind when he designed it. The owner of such a delightful home as this may be justly proud.

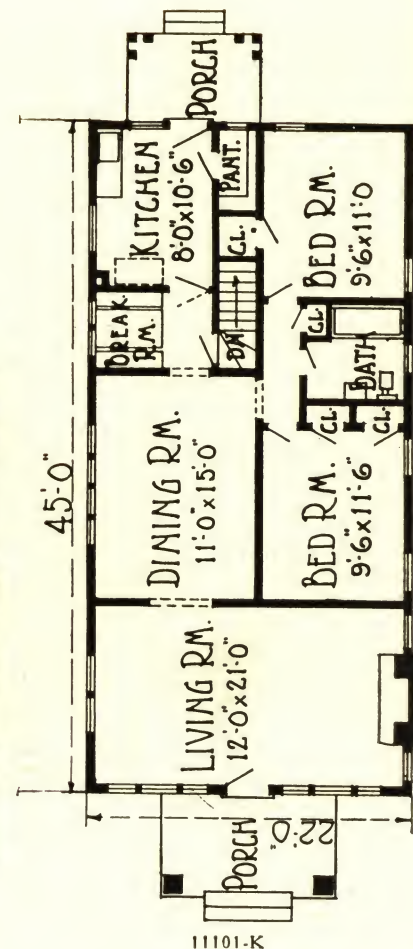


11100-K

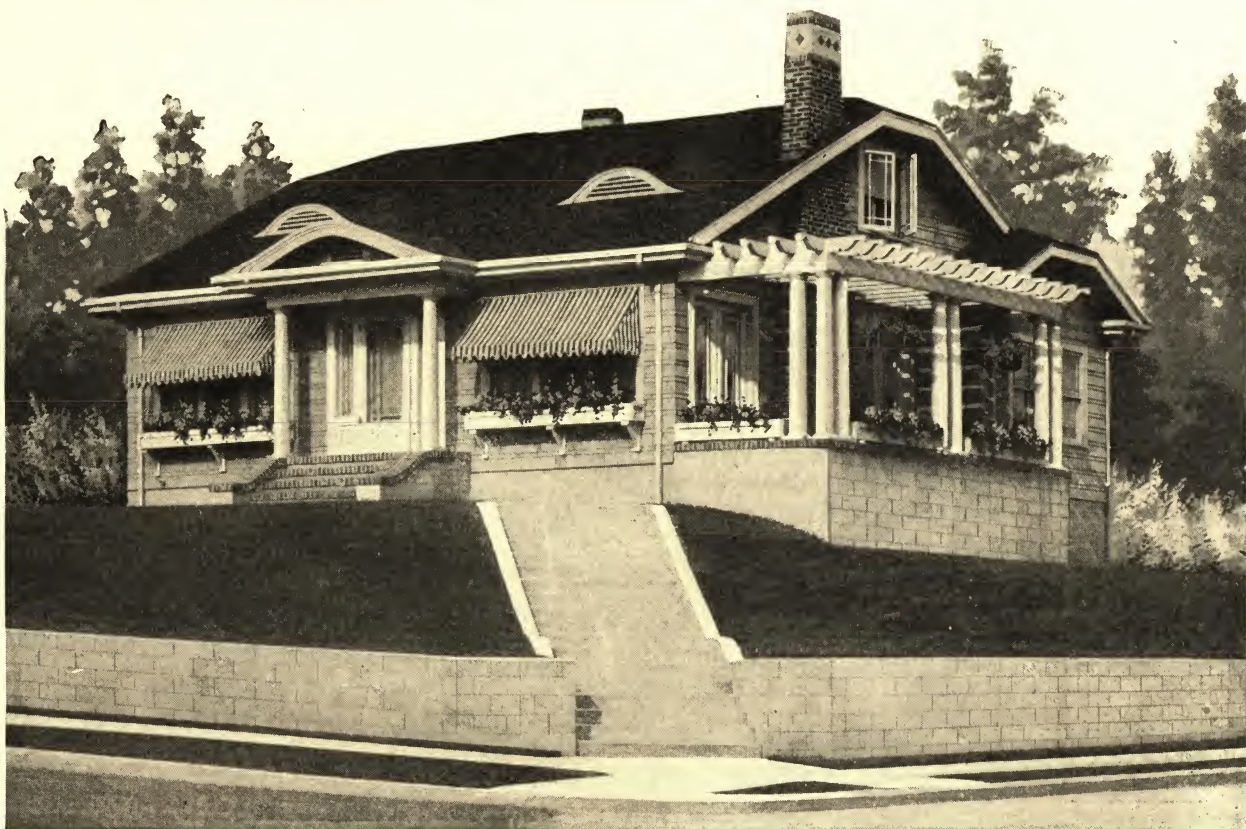
at one side. A series of four windows helps to make it light and airy. A hall at the end of the dining room leads to the kitchen and has a breakfast room on one side. A swing door separates the kitchen from the breakfast room. The kitchen is small, but is equipped with a fair sized pantry, which gives additional working space.

The two bedrooms and the bathroom are connected by a hall leading from the dining room. Each bedchamber is provided with large closet space, and in addition there is a linen closet adjoining the bathroom. The bathtub is well placed, being surrounded by walls on three sides, permitting its use as a showerbath.

A broad porch at the front of this house aids in giving an air of hospitality. Although it can fit a narrow lot, the outside measure being only 22 feet wide by 45 feet long, it escapes the appearance of being long and narrow. This is accomplished by the low, rambling and diversified lines of the

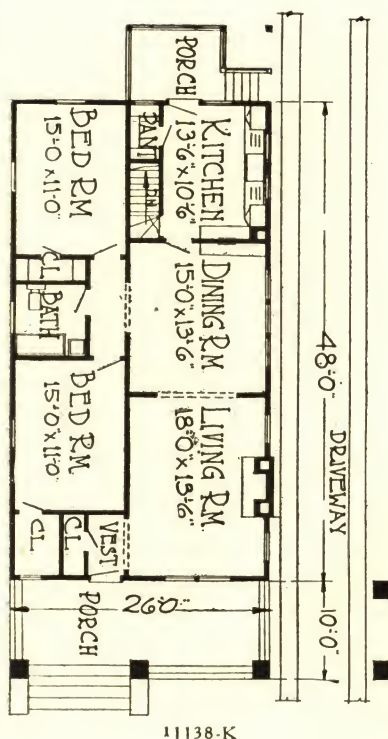


11101-K



11101-K—A Cozy Impression Is Given by This Western Bungalow





11138-K—The Pergola Porch Lends Size and Dignity

## Aristocratic Lines Stamp These Two Models

A WIDE and inviting front porch that does not darken the living-room windows in winter to the pergola over part of it replacing a roof, is one of the desirable features of the house shown above. In the summer, vines on the pergola furnish pleasant shade. The pergola extends over the driveway at the side where it is supported by posts corresponding to those of the porch. This adds to the apparent width of the house, which is 26 feet wide by 48 feet in length.

The front door opens into a vestibule which is an alcove of the living-room. The living-room is of good size, 18 feet long by 13 feet 6 inches wide. An open fireplace aids in making it homelike. Adjoining the living-room and connected by a wide entrance is the dining room. A buffet in the dining room is connected by an opening covered by a small sliding panel with a shelf in the kitchen. Through this opening dishes and

food for the table may be passed between kitchen and dining room.

The plan shows a double drain board sink under the windows at the side of the kitchen, with cupboards on either side of the sink. A pantry is on the opposite side of the kitchen.

A short hallway opening from the dining room connects the two bed chambers and the bathroom. Each bedroom is provided with a closet, that in the one at the front of the house being exceptionally large and lighted by a window.

### A Splendid Mission Type Model

A BUNGALOW design which follows the pleasing and artistic

lines of the Spanish missions to be found in the southwest is shown in the lower part of the page. The exterior is of rough gray stucco with a red tile roof. The entrance door is surrounded by a stucco wall with an iron gate over the walk approaching the house. The front door opens into a reception hall, on one side of which is an alcove with a large mirror and a seat and on the other glass doors opening into the living-room.

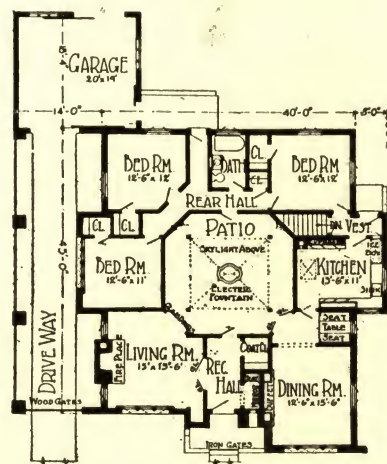
At the back of the reception hall is a door opening onto the most distinctive feature of the building, the patio. This may be adapted to colder climates by covering with a skylight instead of having it open. The plan

provides for an electric fountain in the center of the patio.

The living-room has glass doors opening on the patio and also on the front terrace. It has a large open fireplace. The dining room is on the opposite side of the reception hall from the living-room. It is entered through glass doors from the patio. A breakfast nook with built-in table and seats is provided close to the swing door connecting with the kitchen. The kitchen has a second door opening on a rear vestibule. The icebox is placed beside this door and may be iced from the outside. The sink is placed under the window to the right of the icebox.

Another door from the patio leads to the rear hallway. This hall connects the bathroom and the three bedrooms. A garage built-in the same style as the house is attached to one corner of the rear. At the front of the house is a gate across the driveway supported on one side by the house and on the other a stuccoed and tile covered gate post.

The design is unusually generous in the supply of closets. There is a



large central  
hall  
has

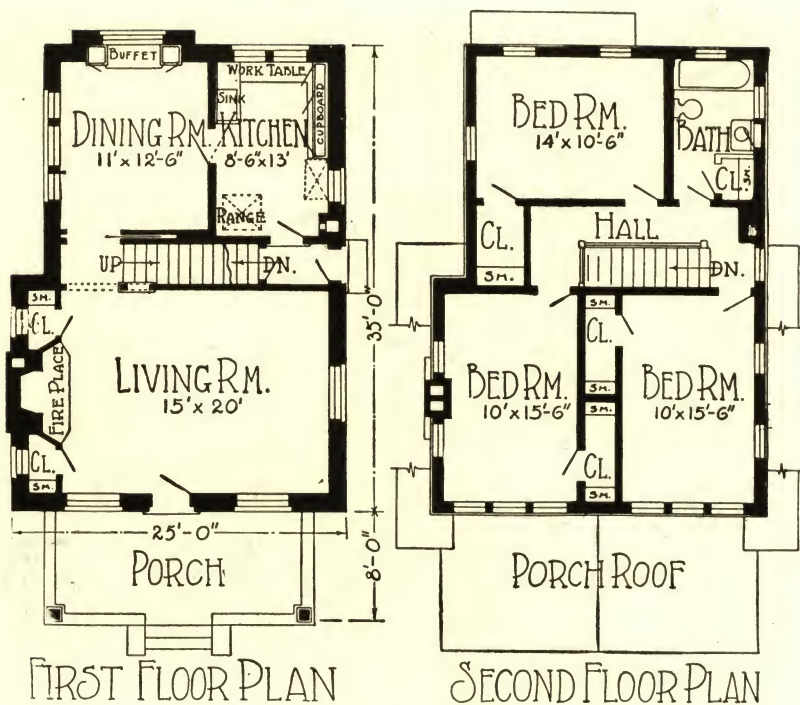


A SIX-ROOM two-story house that provides an excellent interior arrangement is shown on this page. It is of brick construction, simple in design, covering an area of 25 by 35 feet. A large front porch and a wide dormer effect of the upstairs front windows help to give variety to the exterior lines. The gables and dormers are shingled above the line of the leaves, giving it the appearance of a story and-a-half-house, although the second floor has fully as much space as the first.

A large living room occupies the full width of the first floor. This room is 15x20 feet and has an open brick fireplace. It is well lighted, with windows on three sides, and makes an unusually attractive gathering place for the household. A hall on which the stairway to the upper floor opens leads to the dining room. A sliding door makes it possible to shut the dining room off from the living room and hall.

A series of three windows on one side of the dining room and a wide window over the buffet at the rear make the room light and airy. The buffet is built into an alcove at the rear thus not taking up any extra space in the room. The kitchen is at the side of the dining room, a swing door being between the two rooms. The dimensions of the kitchen, 8 feet 6 inches by 13 feet permits a compact arrangement of the working space. The rear portion of the kitchen is occupied by a work table under a double window with the sink on one side and a cupboard on the other.

An outside door opens on a hall beside the kitchen with one door opening on the kitchen and a second door to the stairway to the base-



11092-K

## Six Generous Rooms Without Waste

ment. The stairs to the second floor open on a hall which extends around the well of the stairway. There are three good sized bed chambers and a bath room on this floor. Each of the bedrooms and the bathroom have windows on two sides. The two front bed rooms each have a series

of three windows in front and two large windows on the side. The back bedroom has two large windows at the back and one at the side.

Each bedroom is provided with a large closet with shelves. There is also a linen closet in the bath room. The bath tub is surrounded by walls

on three sides, permitting its use as a shower bath.

The front porch is an effective combination of brick and timber work. It is surrounded with a brick balustrade which furnish the foundation for pillars supporting the porch roof at the two outside corners. A heavy beam between the two pillars provides for uprights that support the peak of the roof. The beams of the roof are left exposed, adding to the plain but substantial effect of the entire design.

The owner of this home laid particular stress, as should every owner, upon the size and lighting of rooms. Although only six rooms in this attractive house, each room was planned with the utmost care and without waste. Why must so many owners possess so many little box-like rooms? Too many owners feel that the plan of their houses are inadequate unless it provides for him a certain number of apartments—a vestibule, a hall, a drawing room, dining room, library, kitchen laundry, etc. No matter how tight the squeeze, the owner demands that the entire category of rooms shall, somehow, be pressed into the plan. As a result, the vestibule is too small, the hall, with its little fireplace, is a mere draughty piece of show. The drawing room impresses a visitor as a cold, stiff apartment, and the dining room is really insufficient for the family. Then it is easy to see the folly of these little box-like rooms. If the owner will stop to think for a moment he will reach the conclusion that he demands these requirements solely because his neighbors have them, and his neighbors have them because they imitated someone else.



bathtub is well placed, being surrounded by walls on three sides, permitting its use as a showerbath.

A broad porch at the front of this house aids in giving an air of hospitality. Although it can fit a narrow lot, the outside measure being only 22 feet wide by 45 feet long, it escapes the appearance of being long and narrow. This is accomplished by the low, rambling and diversified lines of the









The Open Porch Links the Garden to the House

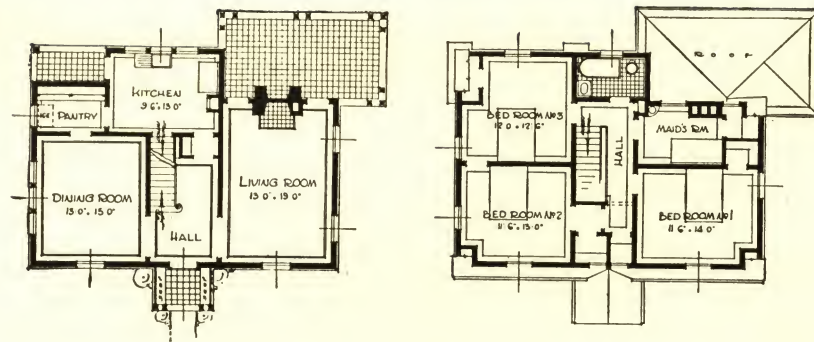


A HOUSE in the Dutch colonial style that is invitingly homelike in every line and at the same time has a quiet dignity is shown in the design here pictured. Like most houses of this type, it is simple in structural detail and correspondingly moderate in cost, while at the same time it presents an artistic appearance. The almost square ground plan gives opportunity for a spaciousness of room arrangement that adds much to the attractiveness of the interior.

A small entrance porch with slender pillars supporting its roof, latticed sides and seats on each side of the doorway gives a distinctive touch to the front of the house. The front door opens on a wide hall from which a wide, open staircase ascends to the second floor. To the left as one enters is the entrance to the dining room, and to the right is the living room.

The living room is a large, well-lighted room 13 feet wide by 19 feet long. At the rear end of the room an unusual feature is a big double fireplace, one side of which faces the living room and the other serves a big sun parlor porch to the rear of the living room. The dining room is also a large, cheery room. There is a series of three large windows on one wall, with a fourth window on the other outside wall.

The kitchen is entered through the pantry, which is directly in the rear of the dining room. The refrigerator is located in the pantry, which also has cupboards and a broad shelf. The kitchen is a large room 13 feet by 9 feet 6 inches. The greater part of the rear wall is taken up with a series of windows under



## The Charming Dutch Colonial Type

which the sink is located. The kitchen has a door to a small rear porch and another door opening on the hall leading to the front door.

The second floor has three large bedrooms and a fourth room which may be used by a maid or other servant. The bathroom is close to the head of the stairs at the rear of the upstairs hall. The hall extends along the side of the balustrade surrounding the stairway well. At the front is a large closet in addition to the closets in the bedrooms.

The two bedrooms on the left are connected by a door in addition to entrances on the hall. This is a convenience where there are children, one room being occupied by the parents and the other by the children, the front bedroom on the

other side being available as a guest room. The maid's room is provided with running water and a lavatory.

The outside construction of this house is frame without, the wide clap boards carrying out the Dutch Colonial effect. The solid wood shutters with the small design cut through the upper panel are in harmony with the Colonial style. The high "hip" roof with the wide extension adding to the room space on the second floor are also characteristic.

There are a large number of houses of this type being built in the small suburban towns of the eastern section of the country. Perhaps this is because they are artistic enough to have the atmosphere of the better class of homes, and still maintain economy of construction

and perceptible simplicity of design.

A house of the Colonial type may be made especially attractive by the furnishings. The furnishings of any home should conform as far as possible with the type of home one may happen to have. Therefore, in the Colonial home, old-fashioned furniture will give a charming atmosphere. Large four-poster beds, higher than the usual bed, fresh dotted Swiss curtains, brightly colored rag rugs, either round or oval shape, will go far towards fitting up an ideal but simple bedroom. Small legged tables or chairs, a little desk, painted or lacquered, may be placed in odd corners of a room of Colonial type, to brighten it up perceptibly. Every piece of furniture which is bought for the house should be appropriate, not only in being Colonial, but also by being well proportioned to the size of each room. Many homes are utterly ruined, when furnished improperly. If the owner would bear in mind that a good idea is to try to make the furnishings eclipse the architecture and even the grounds, he would never fail in having a beautiful and picturesque dwelling. Simplicity, but good judgment is the keynote.

A great deal may be added to any home, particularly to the home of Colonial design, by the grounds, and especially the garden. A Colonial home might just as well lack a kitchen as a garden. A closely cropped, velvety lawn, dotted with well planned and carefully tended flower beds will go far toward making a home doubly attractive. There is something fascinating about the laying out of a garden, and the pergola, when the growth has become attractive.

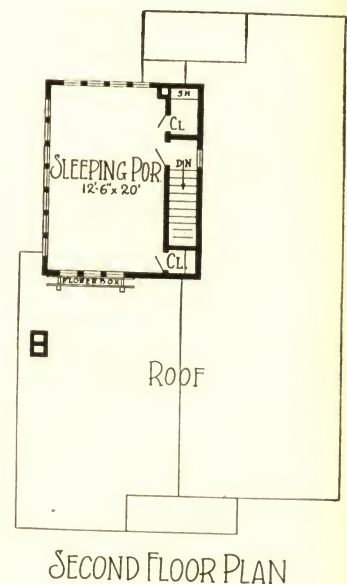
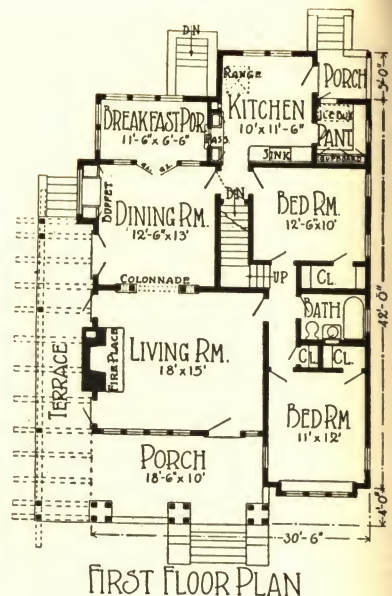


11300-K—Nothing Could Be More Homelike and Dignified Than the Dutch Colonial House





11183-K—A Design of Extreme Novelty but Great Attraction



11183-K

## Unusual Lines, Exceptional Charm

AN innovation in house designing that has many attractive points is shown at the top of the page. Owing to the widespreading roofs both of the main part of the house and the sleeping porch cupola above it has been dubbed the aeroplane design. A porch extends around two sides of the house. It is covered in front with a projecting roof. The side porch is covered by the projecting roof rafters, giving a pergola effect. Numerous white square columns grouped as porch supports give a distinctive touch to the exterior.

There is a large living room 18 feet by 15 feet, with an open fireplace and a wide entrance with decorative pillars leading to the dining room. Back of the dining room is a breakfast porch which has a direct entrance to the kitchen. At the side of the living room is a hall connecting with the bathroom and

a decorative touch. Although the house appears large, its dimensions are only 30 feet 6 inches by 42 feet.

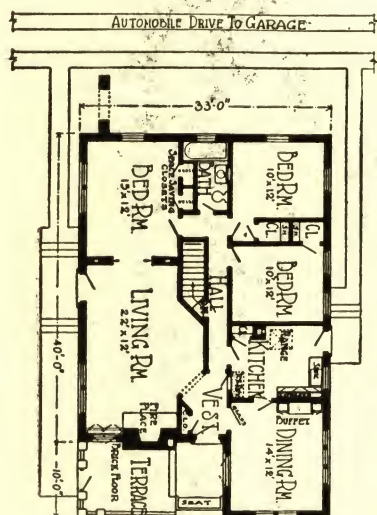
A NEAT brick bungalow of six rooms is shown in the design at the bottom of the page. The red bricks with white bond, the bricks being laid in alternate courses with first the sides and then the ends out, make an effective pattern. The white trim of the doors, windows and eaves makes a decided contrast to the brick background. A brick arch for climbing vines adds variety to the lines at one end of the house. A brick terrace at the other end with brick posts and a wooden picket fence add charm to the entrance way.

The front door, which opens from this terrace, gives access to a wide vestibule, which narrows to a hallway beyond the entrance to the living room. The entrance to the dining room is at the other side of the

vestibule from the living room, the projection occupied by the dining room making it possible to have windows on three sides.

The living room is 22 feet in length and gains an added spaciousness of appearance by an additional width at the center given by narrowing the hallway beyond the vestibule. A large open fireplace, large windows and a French door at the side are further distinctive features of the room. A bedchamber adjoins the living room and is separated from it by a double sliding door. A second door in this bedroom opens on the hall next to the bathroom. A large double closet is built on space which would otherwise be part of the adjoining bathroom. The bathtub in the bathroom is enclosed by this means on three sides and part of the fourth. On the other side of the bathroom with entrances from the hall are two more bedrooms. The

kitchen is between the inner one of these bedrooms and the dining room. The sink is at the side of the kitchen under a window. A large built-in cupboard is at the right of the sink and the range is directly opposite the entrance to the dining room, the arrangement making for economy of steps.



11120-K

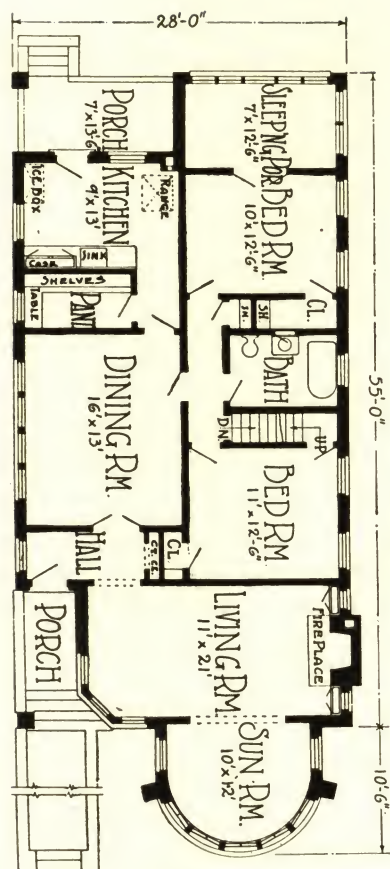
the two bedrooms. The stairway leading to the second floor sleeping porch opens from this hall.

The upstairs room is a porch glassed in on three sides. It measures 20 feet long by 12 feet 6 inches wide. It has two enclosed closets, making it easily convertible into two bedrooms. A flowerbox under two of the windows of the cupola adds



11120-K—An Unusual Example of Perfect Proportions





11233-K



11233-K—A Novel and Attractive Treatment

## Two Beautiful Bungalows

THIS home, designed for a narrow city lot, has a circular sun parlor and a large sleeping porch in addition to five good-sized rooms. The sun parlor, with its large window area framed in white trim and the wide, semi-circular projection of the roof above it, gives a pleasing variety to the lines of the house which makes the whole structure distinctive. It also serves to relieve the narrowness of the dimensions, giving it an appearance of generous width despite the fact that the outside measurements are 28 feet wide by 55 feet long.

On the interior the wide entrance from the living room to the sun parlor makes the latter virtually an alcove of the living room, helping with the windows at either end of the living room to flood it with light and give as much fresh air as can

The kitchen has a door opening on a rear porch. Another door from the dining room opens on a small back hall that gives access to the two bedrooms and the bathroom. The sleeping porch, which may serve as a third bedroom, is reached by double doors from the rear bedroom.

Two dormers aid in giving space and ventilation for a large attic, which may be divided into at least two additional rooms if desired. The complete separation of the living room from the sleeping quarters in this room arrangement adds greatly to the convenience and livableness of the house. This is a merit not always found in the plans of bungalows, important as it is.

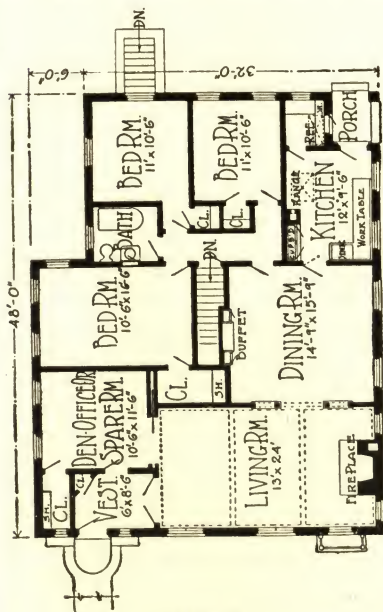
### An Echo of Old England

SOME of the charm of the thatched cottages of rural England has been borrowed for this seven-room bungalow. The irregularly laid vari-colored shingles and the curved arch above the front door aid in giving the thatch roofed effect. The massive front door, which is provided with an old-fashioned knocker, and the solid wood shutters of the windows give an additional rustic appearance.

The front door opens on a vestibule having a double door opening on the spacious living room and another door giving access to a room that may be used for a den, office or spare room. The den has a slid-

ing door opening on the living room, permitting it to be used as part of the living room or shut off from it completely, as desired.

The living room has an open fireplace at the end opposite the vestibule. A wide arch connects the dining room with the living room. The dining room is of good size, 14 feet 9 inches by 15 feet 9 inches. It has a buffet built into an alcove over the stairway to the basement. A swing door connects the dining room with the kitchen, which is compactly arranged with a cupboard and range on one side of the door to the dining room and a sink and work table under the window on the other side. A pantry at the rear has a refrigerator which is iced outside.



11115-K



11115-K—A Perfect Model of the English Type

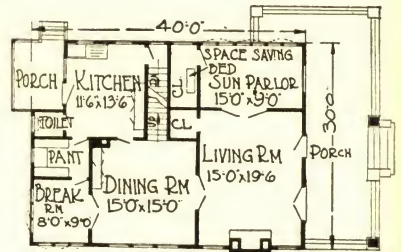
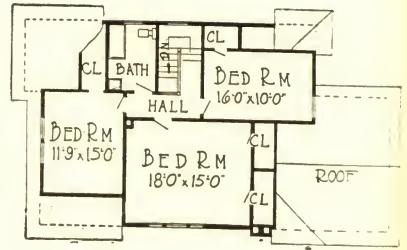
be desired. The living room also has an open fireplace.

The entrance porch, which runs along side the living room, opens on a transverse hallway, which opens on the living room in one direction and on the dining room in the other. Beyond the dining room is the pantry and back of that the kitchen.





11136-K—Of Bungalow Type but with Lots of Upstairs Room



11136-K

## Tasteful, Roomy, Economical Dwellings

A SEVEN-ROOM, story and a half house of simple and economical design is shown at the top of the page. Brick is used for the foundation and porch supports, with stucco above and shingles above the line of the first floor windows. It has a large front porch, which is continued as a terrace around part of one side. A living room and sun parlor extend across the front. The living room has an open fireplace, and the sun parlor is equipped with a wall bed so that it can be used as a bedroom if needed.

Opening from the living room is the dining room, with a breakfast room occupying the corner beyond the dining room. Between the breakfast room and the kitchen is a pan-

try have a good sized closet. In addition to the three bedrooms on the second floor there is a bathroom. The stairs from the floor below open on a short hall which connects the three bedrooms and the bathroom. The house is 30 by 40 feet.

### A Modern Version of the Colonial

THE half brick and half stucco house shown at the bottom of the page has the generous but simple lines of the modified Colonial style and also has a number of more modern ideas in designing worked in. The large living porch, designed so that it can easily be glassed in in winter and screened in during warm weather, is one of the present-day

features. The use of brick and stucco in the exterior also serve to give a different effect, but none of the essentials of the older style house are lost.

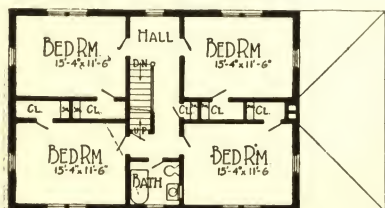
The simple and hospitable entrance is similar in design to that of the Colonial house, but the square brick pillars supporting the canopy over the door give it a decidedly different appearance from that of the round, wooden, white painted columns usually employed.

The interior arrangement is more typically Colonial than the outside. The central hallway running from front to back of the house, one of the distinctive features of the Colonial style, is employed. The stairs to the second floor ascend from the

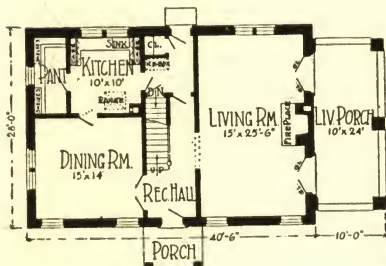
hall. Double doors on the left before the stairs are reached open on the dining room. Beyond the foot of the stairs to the right is the entrance to the living room.

The living room is spacious, being 25 feet 6 inches long by 15 feet wide. It has a large open fireplace. On either side of the fireplace are glass doors opening on the porch. The porch is virtually a second living room. Its dimensions are 10 by 24 feet. The living room extends from front to rear of the house and has windows at each end in addition to the glass doors leading to the porch.

Two charming cupolas which grace this roof are always an added attraction to any small home with a plain front.



SECOND FLOOR PLAN



FIRST FLOOR PLAN

11211-K

try, the kitchen also having a direct entrance to the dining room. A special convenience in this plan is a toilet adjoining the kitchen.

On the upper floor are three large bedrooms. The largest of the three, which measures 18 feet by 15 feet, is provided with two large closets. The dimensions of the other two bedrooms are 11 feet 9 inches by 15 feet and 16 feet by 10 feet. They each



11211-K—A Stucco Adaptation of Colonial Line



# A House with Sweeping Lines

THE generous sweeping lines of the home shown on this page give it an appearance of inviting spaciousness, although the area covered by the main part of the structure, 36 by 32 feet, is not exceptionally large. The portecochere on one side, and the extension of the upper floor over the porch on the other add greatly to the apparent breadth of the building. There is a wide entrance arch at the front porch, and an uncovered extension of the porch leads to the portecochere.

The front door opens on a wide hall extending to the rear of the house. The stairs to the second floor ascend from this hall. Double doors lead to the dining room on one side and to the living room on the other. The dining room has another door opening on the porch under the portecochere and has windows occupying most of the available wall space on two sides. The kitchen is directly back of the dining room, with which it is connected by a swing door.

The living room is large and attractive, with an open fireplace flanked by wall bookcases across the end at the rear and a sun parlor and wide porch at the side. Back of the living room and entered from the hall is a bedroom with a sleeping porch opening from it. At the rear of the hall between the bedroom and the kitchen is a bathroom. The kitchen has an outside door opening on a small back porch.

On the second floor are three large bedrooms, a sleeping porch and a bathroom. The bedroom at the front is the largest room in the house, measuring 29 feet by 14 feet. It has two closets, and opening from it is the sleeping porch. The sleeping porch is provided with a closet, and as it has four double casement windows can be easily used throughout the year as an additional bedroom.

The other two bedrooms, although not so large, are good sized, one being 21 feet long by 14 feet 6 inches

wide and the other 14 feet by 11 feet.

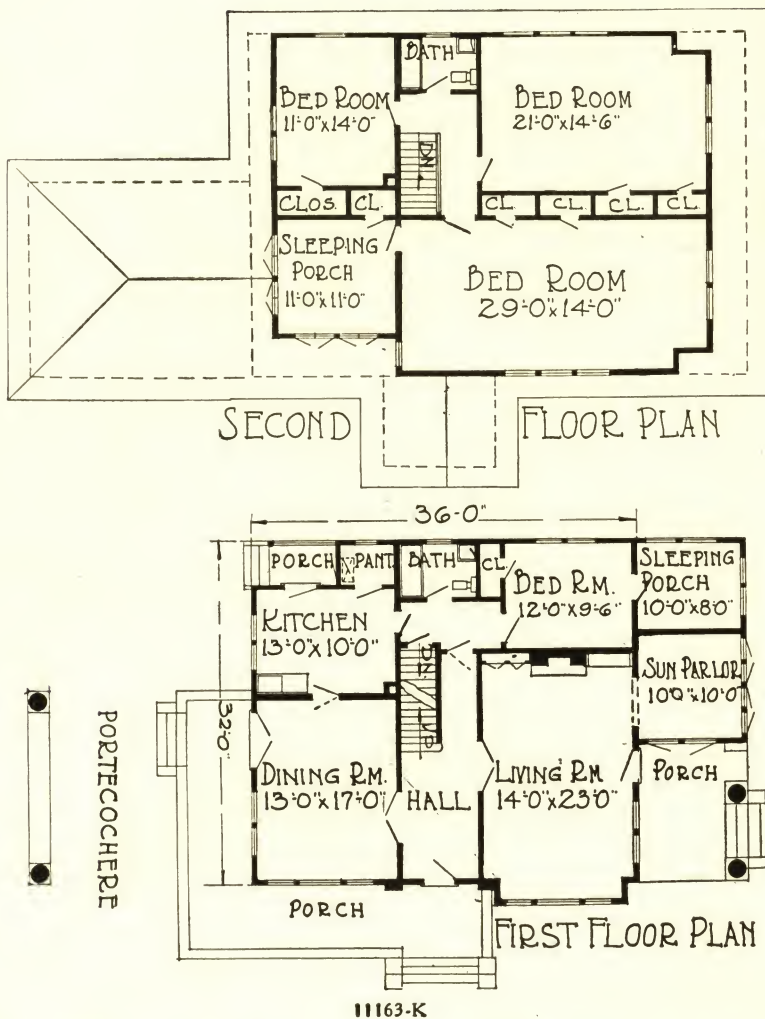
The exterior trim is stucco below the line of the eaves and frame above it. The massive stucco covered pillars at the portecochere and at the porch at the opposite side of the house aid in giving a dignified appearance. The lines of the roof are also used effectively to give a rambling, yet harmonious, effect. The line of the portecochere roof is carried

straight across the house and shingled, giving a suggestion of a story and a half house, although it is practically a full two-story house.

The generous provision of sleeping porches is a feature which will appeal to many. With one on each floor, a sun parlor and a large side porch entirely separated from the entrance suitable for use as a living porch through the greater part of the year, this home permits a great

deal of outdoor living.

Considering all details, one would travel a long way before finding a more delightful home than this. It is a model which is entirely appropriate and well planned for either a town or country house. The sweeping lines, many windows, and the liberal expanse of porch are details which were carefully planned, and go far toward making this dwelling a joy to the owner. The plans, however, are perhaps a bit better suited for a country home. Many good people are undoubtedly, not predisposed to what they term, "country life," except during the short summer vacation. Part of this prejudice is based upon reminiscence, upon a certain traditional "country" which no longer exists in proximity to the larger cities. The isolated house, the muddy unlit roads, the utter lack of modern conveniences—these elements of old-time reality are more easily discoverable today in the memories of middle-aged men than within the region of "commutation." Changes slip in so quietly that it requires a conscious effort to recognize that the suburban country has perhaps been even a bit more improved in the last twenty years than have our metropolitan areas. Local transportation facilities of the big trunk lines have been vastly increased. The trolley has been carried, one might say, almost into the country lanes. The electric light and telephone have been pushed out even into the farm lands. There is indeed, on a fair basis, very little difference today, in the matter of "modern conveniences" between life in a city, and life in a well developed suburb. However this is not an essay on the suburbs; we touch upon the matter only to impress upon the mind of the owner that when he builds such a perfectly equipped home as this in the country, he will recognize that he will be not only proud of such a dwelling, but comfortable in every sense of the word.



11163-K—The Liberal Expanse of Porch Room Makes This Model Inviting



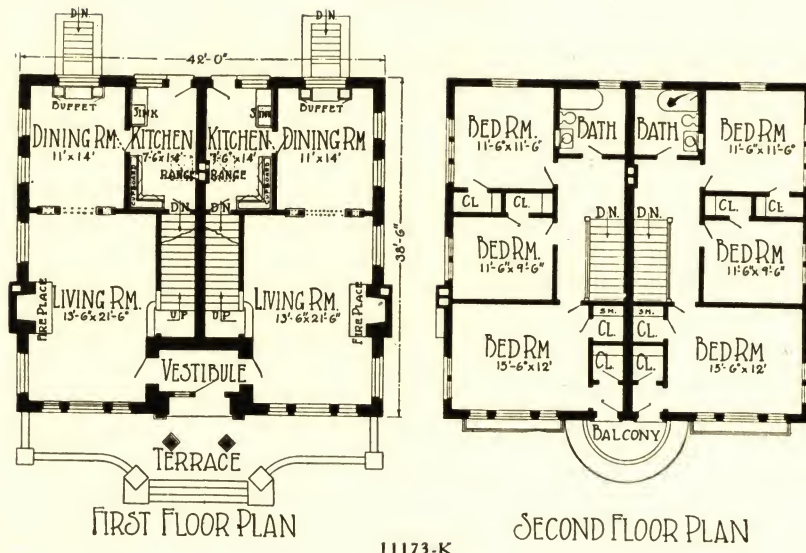
ALTHOUGH apparently a mansion which only a family of exceptionally large income could maintain, this is in reality a duplex house containing two apartments of six rooms each. The owner can occupy one apartment and rent the other. The tall Grecian pillars at the entrance, supporting a semi-circular balcony, and the wide terrace in front help to give the exterior an impressive dignity.

The main entrance opens into a vestibule which has doors on either side leading to the two apartments. The arrangement of the apartments is identical. On the first floor is the living room, dining room and kitchen. Upstairs are three bedrooms and a bathroom.

The living room is 21 feet 6 inches long by 13 feet 6 inches wide. At the side is a broad staircase to the second floor. Opening from the living room is the dining room, with the kitchen adjoining. A swing door connects the dining room and kitchen.

On the second floor are three bedrooms and a bath room. The front bedroom is 15 feet 6 inches by 12 feet and is lighted by a series of three windows in front and two at the side. The rear bedroom is 11 feet 6 inches square and also has windows on two sides. The middle bedroom is 11 feet 6 inches by 9 feet 6 inches and has a single window. All three bedrooms are provided with closets.

This house may be built either of brick or of tile covered with stucco. The square lines of the roof with the wide overhang and the carved beam ends giving it support add dignity and solidity to the structure. Relief is given by the balustrades of balcony and terrace and the posts



## A Duplex House of Elegant Design

of the terrace balustrade surmounted by urns filled with growing flowers.

The carved inset above the front windows downstairs and the medallions over the windows on the upper floor give an added decorative touch.

A duplex house of this type has all the appearance, both outside and in, except for the entrance vestibule, of a large detached residence. It is attractive from the investment point of view, as the owner by renting one side of the house and living in the other can get an income permitting him to live there almost rent

free.

In many residential districts there are restrictions forbidding the erection of apartment houses but permitting duplex houses to be built. The duplex house has all the essentials of a two-apartment building except that each family occupies two floors, the division being through the center of the house.

A duplex house of the design shown here would be an addition to the architectural appearance of any neighborhood. It is far removed from the old fashioned "double house," which advertised plainly its

occupancy by two families. It also has little suggestion of the apartment building except its size. It occupies an area of 42 feet by 38 feet 6 inches, each of the two apartments being 21 feet wide by 38 feet 6 inches long.

Too much cannot be said, in fact, for the duplex house. It is one of the most compact, attractive and convenient advantages of today. It is especially designed for the family of moderate circumstances who feel that they cannot maintain a house of average size. If two families share the expense of a house, it is of course, very cheap and convenient. Two families then, often combine funds in the purchase of a house, and the duplex house handles a situation of this case very nicely. The most desirable thing about such a house arrangement, however, is the fact that one man can own the house, live in one apartment, and rent the other.

The duplex house has not only all the advantages of the regular apartment building, but many others. The average apartment building is bound to be warm in summer if built upon a court, as are most buildings of this kind. Persons who own apartment buildings, do so from the point of investment, and it is naturally to their interest, to charge as high a rent as possible. Apartments, therefore, will necessarily rent for a considerably higher figure than a duplex house. Then one is not only less cramped in a duplex house, but saves a neat sum yearly in rent.

A duplex house provides much more freedom in various ways, than does the apartment building. In a few years we will probably see a great increase in the number of duplex houses.



11173-K—There Is Nothing in Its Appearance to Show This Is a Duplex House



NEATNESS and simplicity mark the design for the duplex house shown on this page. The rounded canopies which project above the roof line over the doors and are supported by tall pillars give a modified colonial effect to the outside. The wide clapboards of the frame exterior add to this effect.

Inside are two four-room apartments. The arrangement of the rooms is identical in each apartment. The front door opens directly on the living room. This is a room 23 feet 3 inches long by 11 feet wide, well lighted by a series of three windows on one side and two windows on the other. The living room may be converted into an additional bed chamber if needed. It is provided with a wall bed that folds into a wall closet at the rear of the room when not in use.

An opening from the living room leads to the dining room. The dining room is 17 feet by 11 feet, with a buffet built into an alcove at the rear. Double doors open from the dining room to a small platform at the side of the house. A passageway entered from the dining room connects with the kitchen directly back of the dining room, with the bed room on one side and with the bathroom on the other.

The kitchen is of the kitchenette type, 6 feet 9 inches wide by 7 feet 6 inches long. The sink is one side of the swing door opening on the passageway leading to the dining room and the cupboard is on the other. Directly back of the sink is the range. A person standing at the sink can reach the cupboard in a single step, and can reach the stove in two. The refrigerator is on the rear porch.

The bed chamber is 10 feet by 11

feet. It is lighted by windows on two sides and is provided with a large clothes closet. There is a large attic over the entire house. Ventilators at each end under the peak of the roof and in the small dormer in the center keep the air in the attic fresh and make it available for storage.

Although built for two families,

this house will be found no more expensive to build than many six or seven-room bungalows. Its outside dimensions are 35 feet by 48 feet, which would not be large for a one-family bungalow. The structural design is exceedingly simple, yet the general effect is distinctive and attractive.

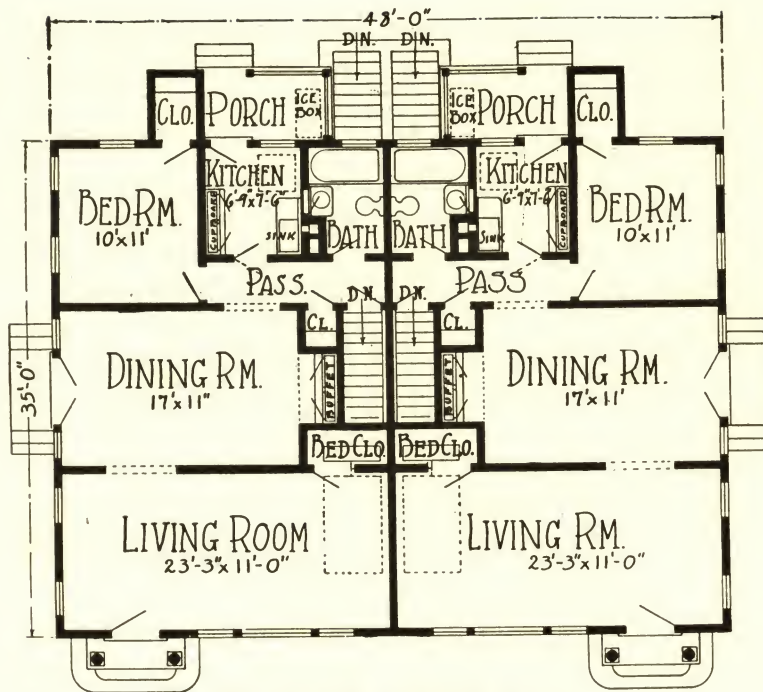
In these days of high rents and

the high cost of building, a house of this character will solve the problem for many families. The family making such an investment is usually able to rent the apartment it is not using for enough to pay for fuel and taxes, pay the interest on money borrowed to build it and pay a part of the principal. This makes it possible for the owner to live almost rent free in his part of the house and still have a home built after his own ideas.

The appearance inside and out and the arrangement of the rooms is attractive enough to appeal to many. It should not be difficult to find a tenant for the second apartment, and the original investment in building the structure is not so great as to be unduly burdensome on a family of moderate means.

This ideal arrangement of 'twin homes' for two families is one of the most attractive designs one could possibly imagine. It is not only the convenience which appeals, but the beauty of the house itself is the most striking feature about it. The window arrangement is unusual, and lends almost as much to the general attraction of the home, as the doors, which are decidedly unique. The roof, being low and very plain across the front with only a half-cupola adds to the general attractive design.

Much may be said of the grounds, when considering the general appearance of this little home. The lawn and shrubbery add a great deal to the effect, the building being set back just far enough from the street. The illustration is a good example of the results obtained when the architect and owner work in harmony, for not only is the house extremely comfortable and well built, but many pet theories have been successfully carried out for the convenience and comfort of two families.



FIRST FLOOR PLAN

## *Ideal Twin Homes for Two Friendly Families*





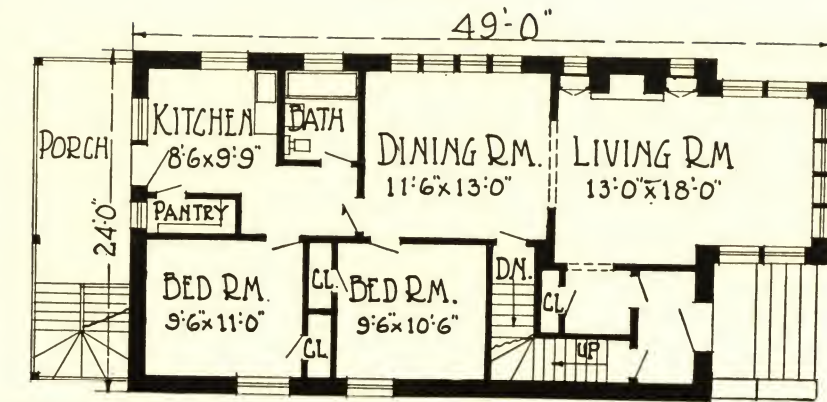
IN large sections of many cities the apartment building is the only solution of the problem of finding a home except for those of great wealth. This does not make it impossible, however, for the thrifty family even where the income is a modest one to lift itself out of the tenant rut.

Countless numbers of two apartment buildings of the general type of that shown on this page are being built by families that will occupy one apartment and rent the other, enabling them to pay for the building in the course of a few years without having to spend more from month to month than if they had rented a place.

The two apartment building shown here is designed for the typical 30 foot city lot. It is 24 feet wide, complying with the usual city building requirement of three feet on each side for light and air. It is 49 feet long exclusive of the rear porch.

The room arrangement of the two floors is identical except that the space occupied by the entrance hall and stairway downstairs is used in the second floor apartment for an alcove that may be used as a den or extra sleeping room. Each apartment has five rooms consisting of a living room, dining room, kitchen and two bed rooms. The sun parlor extension on each floor is part of the living room, making it an attractive room 18 feet long by 13 feet wide.

Directly back of the living room is the dining room, 13 feet long by 11 feet 6 inches wide. The greater part of the outside wall of this room is



11246K—First Floor Plan. Second Floor is the Same With Alcove Instead of Entrance Hall

## *A Handsome Solution of City Lot Problem*

occupied by a series of four windows that flood the room with natural light during the day. A passageway from the dining room leads to the kitchen. Off the side of this passage is the entrance to the bath room.

The kitchen is a small compactly arranged room, measuring 8 feet 6 inches wide by 9 feet 9 inches long. It is provided with a pantry which may be closed off from the kitchen by a door.

The two bed rooms are on the opposite side from the dining room and kitchen. One of the bed rooms, 10

feet 6 inches long by 9 feet 6 inches, opens directly from the dining room. The second bed chamber, 11 feet long by 9 feet 6 wide, is entered from the passage to the kitchen. Each of the bed rooms is provided with a good sized closet.

The exterior is of pressed brick with ornamental stone trim. The bricks are laid in a pleasing design, and the white trim of the windows of the sun parlor adds to the attractive appearance. The entrance to the building is at the side of the sun parlor, a

short flight of cement steps leading to the entrance vestibule.

Unless this building is built close to adjoining buildings that hide the sides it will be found to advantage to use pressed bricks throughout on the outside of the building. The difference in cost will be more than made up in the added attractiveness of the structure. The use of common brick on the sides and rear of an apartment often mars the appearance of many otherwise attractive buildings. If the structure seems likely to remain at some distance from adjoining buildings for some time in the future the use of common brick on the sides will detract from the value of the building while the use of pressed brick will add far more than the extra cost of the brick.

The two-apartment building is each day becoming more popular. They are not only convenient and economical, but very attractive when well designed. Many persons in moderate circumstances have found the two apartment building a great help, not only from the standpoint that they are owning their own dwelling, but receiving their rent practically free, by living, as is the usual custom, on one floor and renting out the other. This type of building is proving popular also, because it is a solution of the small city lot problem. In many cases, lots are too small to warrant the building of a very large apartment building. The two apartment building may be built on less space than a house, for one may build to the lot line if desirable, which is inadvisable in the case of a house.



11246-A—A Two-apartment Building for a Narrow Lot





The Selection of a Home Site Should Be Carefully Considered

## The Road to Secure Ownership of a Home Told Step by Step

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SELECTION of the lot on which to build one's home is, like most first steps, a matter of great importance. It will influence for good or ill everything that follows. Here a family is to live its life for many years. Children may grow up from babyhood to manhood and womanhood. The needs of an entire household, now and far into the future, must be taken into account.

A Sunday afternoon's inspection trip under the guidance of a persuasive real estate agent is not enough to get all the facts the successful home builder must have. If a lot examined in this way shows attractive features they should be the signal for a thorough-going investigation before a decision to buy is reached.

Means of transportation to and from work and stores must be considered. The man who can find a desirable location for his home within walking distance of his work is exceptionally fortunate. In most cases a longer or shorter portion of each day must be spent in going to and from business by trolley or railroad. The character of this transportation, particularly as to overcrowding at the hours it must be used in going to and from work or shopping, are elements to be carefully considered. Distance of the lot from the car line or station, the frequency and speed of the service and the rate of fare should all be taken into account before deciding on the availability of the lot.

The general character of the neighborhood is also important. Congenial and friendly neighbors add the final touch in making an attractive home. Tasteful houses and well-kept grounds throughout the near vicinity will not only tend to set off to the best advantage whatever improvements the builder of the new home may make, but make it probable that his property will go on increasing in value. On the other hand, if surrounding property is ill-kept and down at heels, it is generally inadvisable to build a new residence there.

If it is decided to locate in a subdivision just being developed every effort should be made to find out the intentions of the subdividers. In many cases lots in subdivisions are sold sub-

ject to many restrictions as to the nature and value of buildings to be erected, distance back from the lot line and other features. Such restrictions give an indication of the character of future development in the neighborhood. They are often a valuable protection to home builders.

Nearness to schools and churches are other matters which merit attention. The character of roads and sidewalks and the presence of other improvements such as sewers, water, gas, electricity and the paving of alleys which is of much importance, should also be taken into account.

If sewers, water, paved roads and sidewalks are already in, the prospective purchaser would do well to find out whether they have been paid for, and if not, what portion of the assessments for their cost still remain to be paid. In many cases a lot whose purchase price appears low on its face is found to be comparatively expensive when the assessments for paving, sewers and other improvements are added. These assessments are usually paid in annual installments covering a period of five or ten years, so that the amount still due depends on the number of installments paid before the purchase is made.

### What Constitutes a Good Site

#### Drainage and Shade

THE level of the lot with reference to sewers and drainage must also be considered. A low lying lot is often expensive to grade up to the necessary level, and may cause the cellar to be damp or filled with water in wet weather. A hillside lot, on the other hand, while usually well drained and often more picturesque as a building site may cause much additional expense for retaining walls, terraces and steps if the approach to the location selected for the house is steep.

Trees are an important consideration. Well-grown shade trees are of inestimable value in adding to the attractiveness of both the home and grounds. In cases where the home builder must rely upon planting in the trees at the time the house is built it will be many years before they have reached a size sufficient to be of any great value in giving shade.

Where a lot is located in a natural wood or thicket only those trees which it is absolutely necessary to remove to build the house should be cut down before the house is completed. After a period of living in the house one can tell what trees, if any, need to be cut down to provide necessary light and

vistas. Hasty cutting before the surroundings can be viewed from the doors and windows of the house itself often results in the destruction of trees one would give much to have back again after moving in.

The lot chosen, the question of purchase is the next thing to be considered. The wise buyer, in addition to making as certain as possible that the course of development in the neighborhood will be desirable from the standpoint of his future home, will inform himself as to the prevailing level of prices for similarly located lots in the vicinity. There is no absolute standard of values in real estate such as is to be found in other commodities, the cost of property available for residence purposes being especially variable.

The gauge accepted by expert real estate men is the actual average selling price of similar lots or tracts in the neighborhood. The buyer who shows himself informed on such facts meets the seller on a firmer business basis than the evident novice in real estate buying. He is more apt to get the rock bottom price for the land, as the seller is often willing to sacrifice a large part of commissions and even some contemplated profits in order to make a sale. Even where no financial gain re-

sults from such advance inquiry into prevailing real estate prices in the neighborhood, possession of the information gives the buyer the satisfaction of knowing that he is receiving the value of his money in purchasing his lot.

The lot selected, and the price agreed upon, the actual transfer of the land is now to be made. Here again the matter is not so simple as buying a suit of clothes or ordering a list of groceries. Various documents—a deed, a transcript of title, a contract of purchase are to be considered. Some of these are formidable-looking papers to the layman, but it is not necessary for the purchaser of average intelligence to employ a lawyer if he will take the trouble to inform himself on the two or three legal essentials to a safe purchase.

#### The Purpose of an Option

WHEN the lot has been selected it is often the best procedure to take an option on it, especially if a building boom is on and there is a likelihood that some other buyer will step in and take it before the deal is closed. An option is secured by paying the owner of the land a small sum, often \$10 in the case of moderate priced residence lots, and receiving in return an agreement that the owner will at any time, within a stated period, sell a specified lot or tract of land at a stated price to the person taking the option and to no other. If the option is exercised it is the usual practice, and should be so stated in the option agreement, to credit the money paid for the option as part payment for the land. If the option is not exercised, and the land is not purchased in the time specified, through no fault of the seller, the option payment is forfeited to the owner of the property.

Another method used to accomplish the same result is to deposit a portion of the purchase price in escrow pending the transfer of the deed and the furnishing of the necessary abstracts or guaranties of title. An escrow agreement is a means by which a sum of money is deposited with a bank, trust company or other responsible agent to be withdrawn only on the fulfillment of the specified conditions. Thus a part



Planning the House Is a Job for Winter Evenings





A Building Loan Is Easily Obtained When Your Land Is Clear

## What a Sound Title Is and Why It Is a Requisite to Building

payment for a tract of land may be placed in escrow to be turned over to the seller when the proper deed and proof of title has been supplied. If the seller is not able to show an unclouded title to the land the agent holding the money in escrow is required to refund it to the person making the payment, and the purchase agreement is cancelled.

Such preliminary steps are necessary because it is a legal requirement throughout the country to file with the recorder of the county in which the land is located or some corresponding official a notice of a transfer of the deed to any piece of land. It is also necessary for the purchaser to protect himself by getting proof that there is no cloud to the title under which the person from whom he buys holds the land. If such proof of title is not secured the would-be purchaser may find that he has paid his money for an almost worthless piece of paper instead of getting a lot on which he can build his house. Many desirable tracts of land have been kept from sale for years because, through pending litigation or other causes, no one can show a clear title.

An abstract of title is a condensed history of the piece of land in question from the first legal record of its passage into private hands to the record of its legal transfer to the present holder. Any competent lawyer who may be retained to make the necessary search of the records can provide such an abstract, but it is usually well to employ an attorney who specializes in such work.

The attorney making the abstract may find that there are unpaid taxes or special assessments charged to the lot. He may even discover that at some time in the past it was sold for unpaid taxes. In such cases various penalties must be paid before the title can be cleared. Such obligations should, of course, either be met by the seller or deducted when paid from the purchase price. Any unpaid installments of special assessments coming due in the future should also be revealed in such a search and should be considered in connection with the price asked for the land. They are obligations of the property and of course must be paid by the new owner, failing which the property may be sold for taxes.

### The Value of a Deed

THE deed is a legal document conveying to the purchaser such title to the land as the seller may possess. It is not sufficient in itself to give an unquestionable claim to the land if the title it conveys is not clear. If the attorney making the abstract reports that the title appears clear it is reasonably safe to proceed with the purchase, have the transfer of title recorded and take the deed.

A warranty deed gives the purchaser added security in that it gives him the right to sue the seller for such damages as he may have sustained if it subsequently appears that the title is invalid. It also relieves him from the necessity of turning over any unpaid balance of the purchase price until a clear title has been furnished.

Even greater safety is given the purchaser by a title guarantee. This is a form of title insurance given by several concerns who make the guaranteeing of titles their business. A larger fee is required, but the greater facility in securing loans given the possessor of a guaranteed title as well as the increased security from any loss due to a doubtful title is considered by many purchasers to make it a desirable investment. The title guarantee company certifies, after search of the records and usually the making of an abstract of title, that the title is clear, and agrees to make good any loss to the owner that may result if any flaw is found in it.

The actual transaction by which the land is transferred to the purchaser if the entire purchase price is paid at once is as follows: the buyer B gives to the seller S cash or a check for the purchase price of the land minus any option or escrow payment that may have been made by B. In return B receives from S a deed conveying the land as designated by its legal description and either an abstract of title, a guaranty of title or a Torrens system certificate if the Torrens system of title certification is in use in the county

in which the land is located. If there is a mortgage or other incumbrance on the land its amount should be deducted from the purchase price and the mortgage either paid off before the sale is concluded or transferred to the new owner. If a realtor or other agent acts for the seller in such a transaction the deeds and other legal documents must be signed by the actual owner.

Should the buyer desire to pay for the land by installments, a contract of purchase is made out in addition to the deed. To bind the contract the purchaser pays the seller a small sum as earnest money when the contract is signed, the payment being credited toward the purchase price if the deal is consummated.

The contract specifies the periods at which installments of the purchase price are to be paid, and also states the rate of interest on deferred payments. In addition it usually provides that the seller shall turn over a deed to the property on the payment of the final installment on the purchase price, and fixes the dates after which the new owner is responsible for all taxes, assessments and other obligations on the property.

As soon as it can be obtained after the contract is signed the abstract of title, title guaranty or recorder's certificate of title is submitted to the buyer for examination so that he can satisfy himself that the title is clear. The deed to the property is held as security by the seller until the full purchase price has been paid, when it is turned over to the purchaser.

## Borrowing Money to Build

### Financing a Building

WITH the site for the new home secured, the question of financing the construction of the house must be decided. Few home builders have sufficient available funds to pay for such an undertaking without borrowing some part of the money needed. Fortunately even where the savings that can be used for such a purpose are small it is usually possible to find means by which the venture can be financed.

Where it is decided to purchase a house already built the transaction is substantially the same as when vacant land is transferred. An abstract showing the seller has clear title to the land must be made up. A guaranteed title assured either by a corporation making such guaranties its business or under the Torrens system if it is in use in the locality where the purchase is made should be turned over to the buyer. The buyer should also receive a deed, preferably a warranty deed, conveying the property to him from the former owner. If there is an outstanding mortgage on the property the amount of the mortgage should be deducted from the

purchase price, purchaser can either take the property subject to the mortgage or pay it off.

The contract of purchase should describe all improvements which will go with the land. If the house has been occupied before the sale it is well, in order to avoid any misunderstanding, to make out a supplemental agreement of articles that are included in the sale. It is the usual rule that articles permanently attached to the structure of the building are transferred with it while those which are not can be taken out by the seller when he leaves. Thus a built-in sideboard will be included as part of the house and remain for the new owner while a sideboard which is simply an article of furniture and not a part of the structure of the house will remain in the possession of the seller of the person selling the house. In the interpretation of this rule there are often doubtful cases where it is safest to have a definite agreement in advance of the sale.

Insurance papers on the house should be transferred to the new owner together with the deed at the close of the business transaction.

### Buying on Contract

IN many cases the buyer has property which the seller is willing to take in partial or complete payment for the property sold. In transactions of that character each party to them is in the position of being both buyer and seller. In cases where the agreed values of the traded properties do not exactly balance each other the person receiving the more valuable property either pays in cash or gives a note or mortgage for the amount of difference. Each of the two persons making the trade receives from the other a deed to the new property and an abstract or guaranty of title, as in the case of a simple sale.

Many real estate firms will agree to sell a lot and build a house on it as part of a single transaction. In many ways this is the simplest manner of proceeding, but it usually requires the person for whom the house is built to accept a stock design which can be changed only slightly to meet his individual needs.

In such a transaction the purchaser must have the land title examined with as great care as in the purchase of vacant land, and must also go carefully over the specifications and plans to make sure that durable materials and workmanlike construction is provided. It is usual where this method is followed to have the purchase contract specify a certain cash payment to bind the contract and stated payments at various stages of construction—when the foundations are in, when the walls are up, when the house is under roof and when the interior is completed. In some cases real estate firms will sell land and agree to build a house for a comparatively small initial cash payment and monthly installments spread over a number of years.

Where the partial payment plan is used the transaction is substantially the same as in the purchase of vacant land by installments. B, the buyer gives a mortgage for the unpaid balance of the purchase to S, the seller. When B takes possession of the house he takes out fire insurance equal to S together with the mortgage. A trust deed is given by the purchaser as in the case of a mortgage on vacant land and when the final payment is made B receives the trust deed together with the cancelled mortgage and the trust deed while the release deed is legally filed removing the incumbrance from the official record of the land.

Detailed specifications as to material and workmanship should be included in a construction contract of this form. Unless the purchaser has had considerable experience in building it is a precaution that will usually pay for itself to submit these specifications to an architect for advice. Persons desiring a new house generally know substantially what they want, but it is what is set forth in the spec-





Signing the Contract Ends Talk and Starts Action

## Think of Everything Beforehand and Put It in the Specifications

ifications that they will actually get. Unless great care is taken in drawing up the specifications matters regarded as essentials are apt to be left out. These will cause a bill for "extras" the bugbears of home building if they are added later. Poor and unsatisfactory materials may also be specified unless the purchaser is on the alert to make sure that the most durable and substantial quality he can afford is set forth in the contract.

Before taking possession of the house the purchaser should insist on having a waiver of lien signed by a contractor and subcontractor who built the house. This is made necessary by the law which gives any workman engaged on a building or any person or firm supplying materials for it the right to file a claim or lien on the owner of the building for the amount of any unpaid wages or bills for materials. Such a lien has the same legal status as a mortgage on the property for the amount involved.

### Making Building Loans

**M**ANY persons desiring to build a home will, however, prefer to engage their own architect and contractor. This will give them greater freedom to carry out their individual ideas in constructing a house. It is usually necessary for one in moderate circumstances to take out a building loan to do this.

Most banks have departments devoted especially to building and real estate loans. If satisfied that the applicant for a loan is reliable and of good character they can loan up to fifty per cent of the combined value of the land and the building to be erected on it, taking a mortgage on the lot and completed house as security for the loan.

Some loans are made for a specified period of ten years, the borrower obligating himself to pay interest at a stated rate and to repay the principal at the end of the period. If the bank or other agent making the loan is willing to renew it at the end of the specified period further time to repay the principal may be secured. It is to the advantage of the borrower to secure a provision permitting the payment of part of the principal at the

time he is able to do so. This reduces the interest payments and may result in the ultimate repayment of the loan.

The mortgage gives the person or institution making the loan the power

to foreclose and take possession of the property if the borrower defaults in the payment of the interest or is unable to pay the principal when agreed.

Another method for securing funds

for the building of a home is through a building and loan association. In most states these associations are not held to such rigid limitations as are the banks. They are usually able to loan up to two-thirds of the estimated value of the land and completed building. Thus if it is desired to build a \$5,000 home on a lot that is valued at \$2,000 a loan of \$4,666 should be secured through such an institution.

Under such conditions the rules followed by banks would limit the loan to \$3,500. If the home builder should not have savings sufficient to provide the additional \$1,500 it is sometimes possible to secure a loan on a second mortgage. The second mortgage gives the holder the right to any assets remaining from any foreclosure after the claims of the holder of the first mortgage have been satisfied. It is not so desirable a security as a first mortgage and usually carries a higher rate of interest.

The usual period of retiring a loan from a building and loan association is six years. Some associations give the borrower the choice of repaying in either six or twelve years.

However the mortgage loan is secured the concern advancing the money will, in most cases, aid in making sure that the building is constructed according to specifications. The security for their loan is at stake and they are jointly interested with the owner to ascertain that the worth of the money invested is provided.

Under the procedure usually followed in such construction loans the owner does not handle the money. Payments are made on order of the owner to the contractor under the terms provided in the construction contract on certificate of the architect that the required portion of the work has been done according to specifications. It is customary to defer the final payment until several weeks after the completion of the building in order that any omissions or defects may be discovered and corrected before the transaction is closed.

### Waivers of Mechanics Liens

**B**EFORE the final payment is made the contractor is usually required to show that all materials used in the

## Legal Terms Defined for Home Builders

**ABSTRACT OF TITLE**—A condensed history of the transfers of ownership of a given piece of land from the time it first passed into private hands or from the earliest time for which legal records are available to the time it was transferred to its present owner. It is usually obtained through a search of the public records by a person skilled in this branch of law.

**BID**—An offer to do certain specified work such as building a part or the whole of a house or supplying materials at a price stated by the bidder. Other things such as the reliability of the persons making the bids being equal the contract for work or materials is usually given to the person or concern submitting the lowest bid.

**BUILDING AND LOAN ASSOCIATION**—A mutual organization which loans money for building or other purposes to its stockholders. Stock in such associations is usually purchased on the installment plan, the customary rate being 25 cents per week for each \$100 share of stock. Profits of the association are distributed in dividends to stockholders in proportion to the amount paid in on their stock, the dividends being credited as additional payments on the stock. When the stock is paid for it can be turned in at par value to retire the loan.

**BUILDING LOAN**—A sum of money advanced to finance the construction of a house or other building, for which a mortgage

on the land and building or some other asset has been pledged as security.

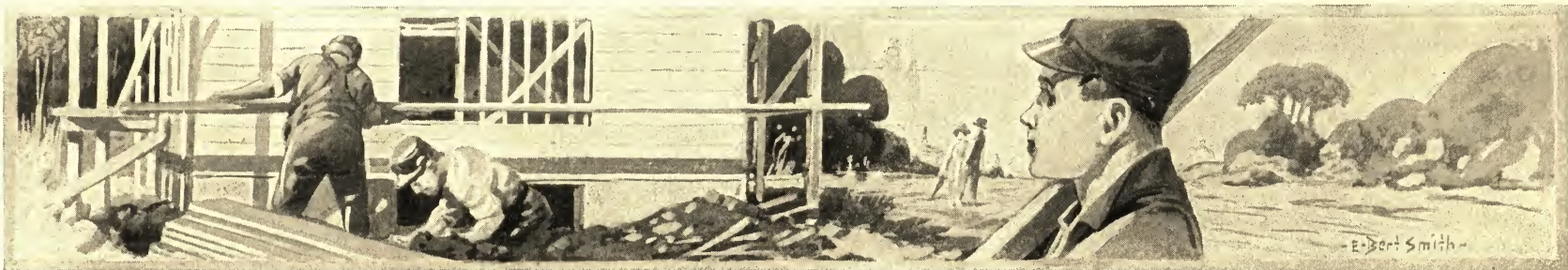
**CONTRACT**—A legal agreement, usually in writing and duly signed by all parties to it, to do the work, supply the articles or fulfill the other obligations set forth in return for specified monetary or other valuable consideration.

**DEED**—A legal document transferring title to the real estate described therein to a new owner. The person giving up possession of the property signs the deed.

**EARNEST MONEY**—The sum paid by a purchaser at the time a contract to buy a piece of property is signed to guarantee his good faith in making the agreement. If he fails to make the purchase through no fault of the seller and no defect in the property sold the money is forfeited to the seller.

**ESCROW**—The placing of money or other valuable consideration in the hands of a third person to hold pending the fulfillment of conditions specified in an agreement between two parties, to be paid to the party fulfilling the conditions or returned to the party offering the payment if the conditions are not met. A payment is often made in escrow to bind the sale of a piece of land, the money to be returned to the person offering to purchase, if the seller cannot show a clear title, or to be given the seller if the title is proved.

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How Eagerly We Wait for the Framework to Go Up





Moving Day Is Welcome When We Move Into Our Own

## Good Plans a First Essential to Good Building--- Be Sure of Your Architect

structure have been paid for and all payments on sub-contracts made. This proof is usually in the form of waivers of lien from the material dealers and sub-contractors relieving the owner of the house from liability for any unsatisfied claims.

This precaution is necessary because, under the law, if a builder fails to pay for the material or labor used in the construction a mechanic's lien may be attached prohibiting the owner from taking possession before the claim is settled.

With the financing provided for, the employment of an architect to put the plans in shape for the builder is the next step in order. Before this stage is reached the prospective occupants of the new house usually have definite ideas as to the main features to be embodied in the structure. In some cases a satisfactory design may be secured from one of the many concerns that supply building plans and specifications for residences. In that case a considerable saving in architects' fees may be made.

If no ready-made design, including features considered essential for the new home, can be found it is generally through his knowledge of technical building details, the comparative merits of various materials and the customs of the building industry will save the owner far more than the amount of the fee. The practice usually followed by architects is to charge a specified percentage of the cost of the building for making the plans and specifications and an additional percentage for supervising the work. Unless the home builder has considerable practical knowledge of building and is able to spend a great deal of time watching the workman it is usually advisable to pay the additional fee for supervision as workmen are almost sure to misinterpret some portion of the plans or specifications entailing either expensive corrections or results that are unsatisfactory to the owner.

Production of a practicable house plan that embodies as many as possible of the features desired by the prospective occupants is the first task of the architect. The amount the owner can afford to pay for the building should be definitely understood before the planning begins. In the majority of cases the question of cost is a guiding consideration in the choice of materials, the size of rooms and all the other fundamentals of the house plan. The lowest initial cost is not always the cheapest in the long run, for the home builder should keep in mind that the structure must be kept in repair for many years and the house should be built for durability and service as well as low first cost.

There is usually a sum beyond which the home builder does not consider it wise to carry his investment, however, and the skillful architect will work

with him to secure the best results obtainable within the limits set.

After the plans are worked out to the satisfaction of the prospective owner the specifications must be prepared. These appear to the layman at first glance to be a confusing mass of technicalities. They merit careful study with the architect present to explain meanings that are not understood, for they set forth the character of material and workmanship for every detail of the new home.

### Importance of Specifications

TIME spent in getting a thorough understanding of the specification may save lasting regrets and much extra expense later, for the architect, however skillful he may be, does not always grasp all the details desired for the house. The owner visiting the partially completed structure may find some feature being constructed in a manner far different from that desired. Investigation will usually show that specifications are being followed, and

the owner's failure to grasp the meaning of the specifications and plans is responsible for the misunderstanding. The owner must then decide whether to order a change to his original conception of the feature, paying the expense as one of the "extras" that add to the contract price of the house or reconcile himself to it as actually constructed.

When plans and specifications are approved by the owner they are placed in the hands of contractors for the preparation of bids. Other things being equal the contractor making the lowest bid should be given the contract, but it is usually wise to investigate the bidder's reputation for reliability and workmanship before making the award. The contractor who is in the habit of skimping on materials and employing second-rate workmen at the minimum scale can often afford to make a lower bid than the more conscientious man who wants to give the best possible results to the owner. Often the cost of extras and subsequent repairs required by the character of work done by the cheaper contractor makes the house

more expensive as well as less satisfactory than if a slightly higher bid had been accepted.

In many cases all bids made by contractors are far in excess of the limit set by the home builder. Owner and architect must then proceed to eliminate items which run up the cost. It is usually possible to obtain the detailed estimates on which the bids have been based, and the trained architect can be of great assistance in advising the character of cuts to be made.

Substitution of cheaper materials is one method which may be followed. This is usually inadvisable except as a last resort. It is better in most cases to postpone the construction of portions of the house to a later date rather than cheapen the entire structure by using poorer materials.

Porches, which are not a part of the main structure of the house, can be built on afterward at no more expense than if they were constructed at once. Upstairs rooms, if the house is a story and a half or a two-story building, can be left unfinished until more funds for building are available. Some home builders have economized on the original cost by leaving bedrooms as sleeping porches, to be enclosed as finished rooms at a later time.

The architect should be relied upon for advice in making such cuts. Often satisfactory substitutes for some of the original specifications and designs can be found at a great saving in cost, while other substitutions which seems on the face a great saving may actually prove more expensive. When portions of the original plan are to be discarded the contractor is usually asked to state the amount that he will deduct from the total cost if the elimination is made, and if the change is decided upon the specifications are revised and the amount of the bid correspondingly reduced.

When a final decision is reached on the bid to be accepted and the revisions to be made in the plans and specifications the prospective home owner is ready to sign the building contract. The blank form for this may be procured from any firm dealing in legal documents, spaces being left for the names of the persons for whom the house is built and the contractor. It obligates the contractor to build the house in accordance with the specifications, which are attached to it, and may provide a penalty for failure to complete the structure within the agreed time.

### Checking Up Contractors

THE times at which payments are to be made by the contractor are specified in this contract. Usually a percentage of the total bid is paid when the foundation work is in, a second part when the walls are up, a third when it is under roof, a fourth when

## Legal Terms Defined for Home Builders

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**FORECLOSURE**—A forced sale, usually a public sale held after advertisement for bids, of property pledged as security for a mortgage loan when the mortgager defaults in payment of the principal or interest on the loan. Proceeds of the sale are devoted to payment of the loan, any amount in excess of the obligation being returned to the mortgagor.

**GUARANTY OF TITLE**—A contract given in return for a fee the validity of the title to a piece of real estate and agreeing to make good any loss which may result should the title be found to be invalid.

**INTEREST**—A specified percentage of a sum of money loaned paid by the borrower to the lender at stated intervals until the sum borrowed has been repaid.

**INSTALLMENTS**—Partial payments of a stated total sum the amount of each installment being subtracted, when paid, from the total amount due.

**EQUITY**—The owner's right in a mortgaged property, usually computed as the value of the

property in excess of the amount of the mortgage.

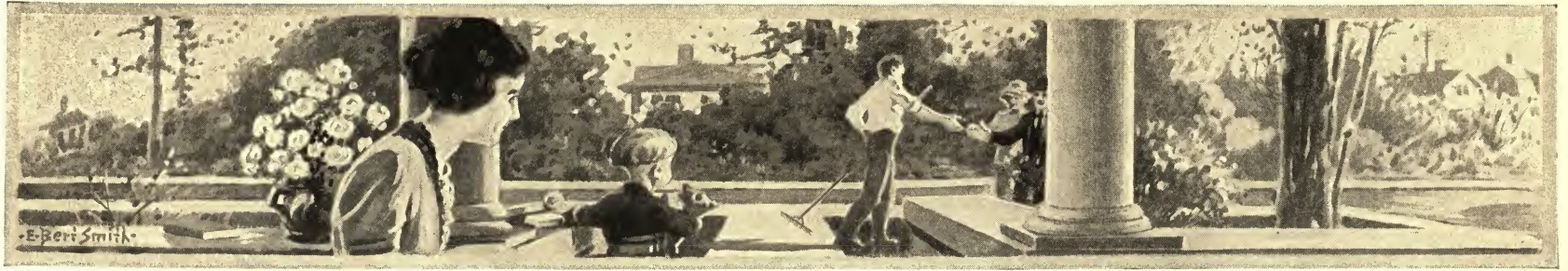
**MECHANICS' LIEN**—A legal claim on real estate given by statutes in most states of the United States to mechanics and material men for the price or value of improvements supplied by them. In many states a lien of this character can be attached, even though the owner has paid the contractor the full agreed price, if the contractor fails to pay for materials used or work done on an improvement.

**LOAN**—A sum of money borrowed on agreement to repay it either at a stated time or in specified installments.

**MORTGAGE**—A lien or charge on real or personal property which gives the holder the right to sell and transfer both title and possession of the property in case of default of the fulfillment of the obligation to secure which the mortgage was given. Usually a mortgage is given as security for a money loan and is in form a transfer of title to the holder, with the condition that the transfer is void if the interest and principal of the loan are repaid as agreed.

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The Completed Home Is the Fulfillment of Our Dreams

## A Thorough Inspection Before Acceptance Sometimes Saves Costly Replacements

the structure is ready for the new owner to move in, and the balance within a stated number of weeks after that.

The purpose of postponing the final payment is to give time to discover any defects before dealings with the contractor have been concluded. If an architect has been retained to supervise the construction work, the payments are made when the contractor presents a certificate from the architect stating that the specified portion of the work has been done in accordance with the specifications and contract.

In most municipalities various permits must be secured before actual construction work can begin. These include a building permit, issued after the plans have been inspected, permits for connecting with the sewer and water main, and if the street is paved a permit to make the openings in the street necessary for these connections. In many cities a test of the plumbing is required before the plastering is put on the walls. It is the duty of the contractor to see that the required permits are secured and the tests made at the proper time, but the prospective owner will save possible trouble and expense by assuring himself that the contractor is familiar with the local building regulations and will live up to them.

When the new owner moves in, regular fire insurance should be taken out in place of the builders' insurance, which covers only the period of construction before the building is occupied. If a loan has been taken out with the building as part of the security, the bank or person making the loan will usually require insurance to the full amount of the loan to protect the principal.

Before the final payment is made to the builder the new owner should require the contractor to furnish waivers of lien from all sub-contractors and from the concerns that have supplied materials for the house.

Without such waivers, should the contractor become insolvent or fail to meet his obligations for any other reason, the owner of the house is made liable for the unpaid bill, regardless of whether he has paid the full contract price for the building.

When the final payment is made the owner should receive a receipt from the contractor showing payment in full for the construction work, in addition to the waivers of lien. With these papers from the contractor, an abstract showing a clear title to the property and a deed showing its legal transfer to his possession, the new home owner is ready to take up residence in his new abode reasonably safe from any legal complications so long as he pays taxes and special assessments when due and makes interest and principal payments on any mortgage for which the property is given

as security, promptly when due.

### Selecting the Contractor

IN selecting the contractor who is to build one's house almost as great care should be exercised as in choosing the location in which the house is placed. It is not always wise to accept the lowest bid offered. Some unscrupulous contractors are enabled to underbid other more conscientious ones by relying on the substitution of cheaper materials for the grades included in the specifications. Unless there is more constant expert supervision than that given the construction of the average home he has many opportunities for slipping in second rate material if he is so inclined. Even where the architect has been retained to supervise construction this supervision is usually a periodic inspection during construction.

There is plenty of opportunity to cover up defects which will not show themselves until wear and weathering search them out.

### Considering the Bids

THIS does not mean that all low bids are to be held under suspicion. Some of the most conscientious contractors limit their margin of profit to a smaller amount than less scrupulous ones, relying upon the volume of work gained through a reputation for good work and reasonable prices to make a profitable business.

Neither does the fact that a contractor is handling a large volume of business mean that he will give the best results. Such a contractor may be pushed to his limit on some building project which he considers far more important and neglect the individual

residence he has contracted to build. This may mean dragging out the period of construction, which is usually an inconvenience, is likely to result in insufficient supervision of the workmanship.

On the other hand the small contractor may be able to buy material as advantageously as the large one, or may not have the credit or financial resources necessary to carry through the construction of the building. As any subcontractor engaged by such a contractor may attach a mechanic's lien on the new house and make the owner liable for the obligation it is important to satisfy one's self of the financial reliability of the man who contracts to build the house.

It is usually not difficult, however, to determine the competency of the bidder both financially and in construction work. The work he has already done and the judgment of persons who have employed him may be inquired into. References submitted with the bid should be followed up to determine his business standing. A little care at this point may save loss and disappointment later on.

### Local Contractor Preferable

IF building in a suburban or country community it is often advisable to employ a local builder or contractor if a good and dependable one can be found. He is apt to give it more personal supervision and take greater pride in having all details correct than the outside builder who may consider the construction of the house a side issue far removed from the rest of his business. The local man must depend to a large extent on the reputation gained in building one house to secure the contract for the next and so is apt to take greater care to please the owner, who will be a walking advertisement throughout the neighborhood if he is well pleased.

### Plan Approval

BEFORE final approval is given the plans prepared by the architect the owner should make sure that he understands thoroughly every detail. The layman has difficulty in visualizing the appearance of rooms and other details from the plans, and even where the architect has been given explicit instructions as to desired features he may fail to grasp all of them or forget to put them in the plan. If such omissions or mistakes are not discovered until they are seen in the actual building the owner must be at extra expense to have them changed or put up with details of construction that are far from those desired. The contractor has made his estimates on the basis of the instructions given him in the plans and specifications and can legitimately pass expense of alterations on to the owner.

## Legal Terms Defined for Home Builders

Continued from page 108

**NOTARY PUBLIC**—A man or woman holding a state commission for a term fixed by law giving the right to witness signatures and administer oaths. Their commission gives them the right to affix an official seal with their signatures attesting that the signer of a document attached his signature or mark in their presence or swore to the correctness of statements set forth.

**NOTE**—A document in which the signer obligates himself to pay a specified amount of money at a time stated in the note.

**OPTION**—An agreement usually given for a money consideration according to the holder the right to purchase a specified piece of property at a stated price within a stated period.

**EXTRAS**—Work done or materials supplied in building in addition to the specifications provided in the contract.

**PERMIT**—A certificate supplied by the city, village or other local governing body giving permission to proceed with the work specified.

**SPECIAL ASSESSMENT**—A tax levied on land owners to pay the expenses of public improvements such as sidewalks, street paving and sewers, which will increase the value of the property. The assessments levied by a local

governing body are usually subject to review by a court before they are a legal liability of the property owner, the assessing body being required to show that the value of the property assessed will be increased an amount equal to the assessment made.

**SPECIFICATIONS**—Detailed provisions as to materials and character of workmanship to be used in the construction of a building.

**SURETY**—One who agrees to make good a liability in case of the default of the person incurring it; thus the surety on a loan is one who agrees to pay principal and interest if the borrower fails to do so at the agreed times.

**RESTRICTIONS**—Regulations as to the use of land and the character of improvements to be made on it. These are usually included in the deed transferring title to the land and if so are legally binding on the new owner.

**TRANSCRIPT OF TITLE**—A copy of the official records showing the various transfers of ownership of a tract of land.

**ZONING**—Division of a city or town into various areas or zones within which new buildings must conform to regulations and uses set forth by law.



## Plans for Model Homes

COMPLETE plans and specifications, with estimates of cost and full information as to materials required, for any of the model homes illustrated in this book under which a number appears may be obtained at the prices hereinafter quoted. These plans are prepared by the Radford Architectural Company of Chicago and have been perfected in all details from actual experience in the erection of the buildings. They comply with building law requirements and follow the principles of sound construction. As you may judge from the illustrations, they are examples of the latest and most approved styles in small home architecture.

### Information Gladly Supplied

INFORMATION concerning the probable cost of erecting any of these buildings in a given locality will gladly be furnished without charge, and questions on other points not clearly covered in the text of this book will be answered.

#### Prices for complete plans and specifications:

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98	11300-K	30.00
98	11183-K	30.00
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## Making Cleaning an Art

THE phrase, "Making Cleaning an Art" may sound like placing household drudgery on an idealistic plane; nevertheless, application of scientific knowledge and methods to cleaning tasks is creating the "Art of Cleaning." Successful art requires a fundamental understanding of materials, composition and applied results.

In the rapid progress of scientific knowledge during the last score of years, development of easier methods of cleaning and the spread of knowledge about cleaning have kept pace with the many other applications of scientific information. Contributions to household efficiency and economy are always in the forefront when science's new discoveries are given practical application. Witness the electric appliances, the development of scientific food preparation, and all the specialized knowledge and equipment which make for labor and money saving in home management. More and more, the job of housekeeping calls not for drudgery, but for executive ability.

Important chemical and physical reactions take place in many cleaning processes. The modern theory of soap and water to spread a thin, slippery film through the fabric and around the dirt which, by agitation, is then easily shaken out. To secure this action pure soap is necessary.

The character of water is another important factor. Hard water is hard because it contains mineral salts, such as lime and magnesia. These salts have an affinity for soap and will gather just so much soap necessary to neutralize them. They become inert, making insoluble soap which has no

cleaning value.

In hard water, therefore, more soap is necessary in order to leave free soap for the cleaning work. Such products as sal soda have a greater affinity for these salts in hard water than has soap. Therefore, hard water that is softened first with sal soda will act practically as well as natural soft water in allowing the full soap value to be employed.

The chemical process in which lye is used is another well-known cleaning method. Lye has the action of saponifying grease. It is extremely powerful and will attack fabric and destroy it. Its action is consuming of all surfaces like varnish and grease, and through that method eliminates the dirt. For a long time a combination of mild lye and soap was considered a good scrubbing preparation because of the combined chemical action and soap action.

MORE recent years have seen the development of cleaning preparations for special uses, and, important among them are cleansers for use in cleaning kitchen ware, sanitary ware, floors and so on. They are strictly mechanical in their cleaning properties, and depend on abrasive action rather than on the principle of washing with soap. As so much household cleaning is of the scouring kind, it is of real interest to note how science has again stepped in with an important contribution making for a saving of time and energy. Geologists have told us of a natural mineral found in very fine, white, flaky form, and of volcanic origin, which has been found to have natural and highly effi-

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# The Home Library

Dreams, books, are each a world, and books, we know, are a substantial world, both pure and good. Round these, with tendrils strong as flesh and blood, Our pastime and our happiness will grow.  
—William Wordsworth.

WELL chosen books, ranged on shelves and piled on tables or desks in the "orderly disorder of constant use" add the final touch of cozy livableness to a home. They join the invitation of the big easy chair for a quiet hour that is both entertaining and profitable. The very contrast of their bright colored or somber bindings give a decorative touch that could not be secured in any other way.

In selecting the books to be placed in the home much thought and care must be exercised in choosing just those books which have a definite value for the individual members of the family group. Unless the family income admits of an extensive library, entire sets of single authors, except such authors as happen to be favorites, should give place to a greater variety of books—books suitable, for instance, for reading aloud in the family circle. The books found in the home are bound to express more than any other thing, not only the taste and preference, the discrimination and culture of the family, but the very spirit of the members.

There must be an intelligent selection of books for the children of various ages as well as for the adults, and the personal literary tastes of the various members must not be lost sight of. For the very little children, who as yet read only pictures, we should place on a low shelf of their own, where they can reach and early feel the thrill of handling and almost literally devouring—as they will do on occasion—such fascinating picture books as the "Jolly Mother Goose Annual," illustrated by Blanche Wright; "The Story of the Three Little Pigs," or "The Man in the Moon," both illustrated by L. Leslie Brooks; "The Farm Book," "Railroad Book," illustrated by E. Boyd Smith; any good animal book such as the Ernest Nister books or the "Animal Why Book," by M. P. Pygraft.

Then for the rapturous age of children from five to six, who invariably greet the story teller with "Tell it again," there will be the shelf of books which will begin the child's first library; books which first read aloud to him by older members of the group, finally become his own wonderful kingdom when he has been initiated into the mysteries of reading. One of the beautifully illustrated, "Child's Garden of Verse," by R. L. Stevenson, "Sing Song," by Christina Rossetti, and "The Posy Ring," by Wiggins and Smith, may well start the poetry shelf.

FROM the delights of the linen and rag picture books of the "Peter Rabbit" series, or the "Story of Henny Penny"; "The Old Woman and Her Pig," and others from Jacobs' "English Fairy Tales," he will welcome to the great adventures that "never were on land or sea." Then "East of the Sun and West of the Moon," by Gudun Thorne Thompson; "The Sandman Farm and Sea" stories of William J. Hopkins; the Joel Chandler Harris "Uncle Remus" stories as well as the many fairy tales will give him his heart's desire.

Now comes an age when no child should be without some two or three

of the following books: "Swiss Family Robinson," "Gulliver's Travels," Pyle's "Robin Hood," "Arabian Nights," "Peter Pan," "Alice's Adventures in Wonderland," "Pilgrim's Progress." These books are so necessary at this age partly because they give the boy or girl a taste which is almost certain to lead to further adventure later on in the best adult literature.

Psychologists tell us that at the age of twelve years there is a sudden rise in the amount of reading done by both boys and girls, and this continues for at least three or four years. Boys of this age show a great preference for stories of adventure, exciting tales with a hero and rapidly moving events, as well as biography, exploration and travel. The book shelf in his room then should be stocked with such books as "Huckleberry Finn," by Mark Twain; "Treasure Island," by R. L. Stevenson; "Two Years Before the Mast," by Richard H. Dana, Jr., and a dozen others to be found in the accompanying lists.

Girls of this age also like adventure and biography, but they also want more fiction and stories of great women. First on their shelf should come "Little Men," "Little Women," and "The Old-Fashioned Girl," by Louisa M. Alcott. Some of Frances H. Burnett's stories, "The Little Princess," "Sara Carewe" or "The Lost Prince" may be placed alongside.

On these shelves, too, will be placed many of the best legends and stories, including "Tales of Troy and Greece," by Andrew Lang; "Old Indian Legends," by Zitkala Sa; James Baldwin's "Story of Siegfried," or "Story of Roland," and stories of modern heroines of the type of Laura E. Richards' "Florence Nightingale."

Then for the child who has a special interest in science, and most youngsters in their teens do have if they have in their possession the books which stimulate them to pursue this knowledge, there are the Fabre books, or any well illustrated flower and bird guides as are listed below. To answer the needs of those interested in the stars, there is G. E. Mitton's "Book of Stars" or "Star and Planet Finder," by Serviss; for the boy who likes engineering there is Domville Fife's "Submarine Engineering of Today," or A. Russell Bond's "With Men Who Do Things." The important thing in the selection of the particular books chosen for any individual boy or girl is to minister to the interests he already has in the book world and to stimulate new and wider interests.

The wise choice of books for the adult members of the family—books to be placed on the shelves of the library or living room and lived with through the years—is a difficult matter, dependent upon a number of things. If there is a good library in the community, which contains a fairly complete collection of popular and classical works as well as books of reference, then the volumes selected for the home will follow more closely the personal tastes of the various members of the family. Certain reference books are indispensable, however, since they are in constant use. One up-to-date atlas, such as Reynolds' "Comprehensive Atlas and Gazetteer of the World," or Rand McNally's "Handy Atlas of the World," a good standard dictionary if the more expensive encyclopedia seems prohibitive and for the children who

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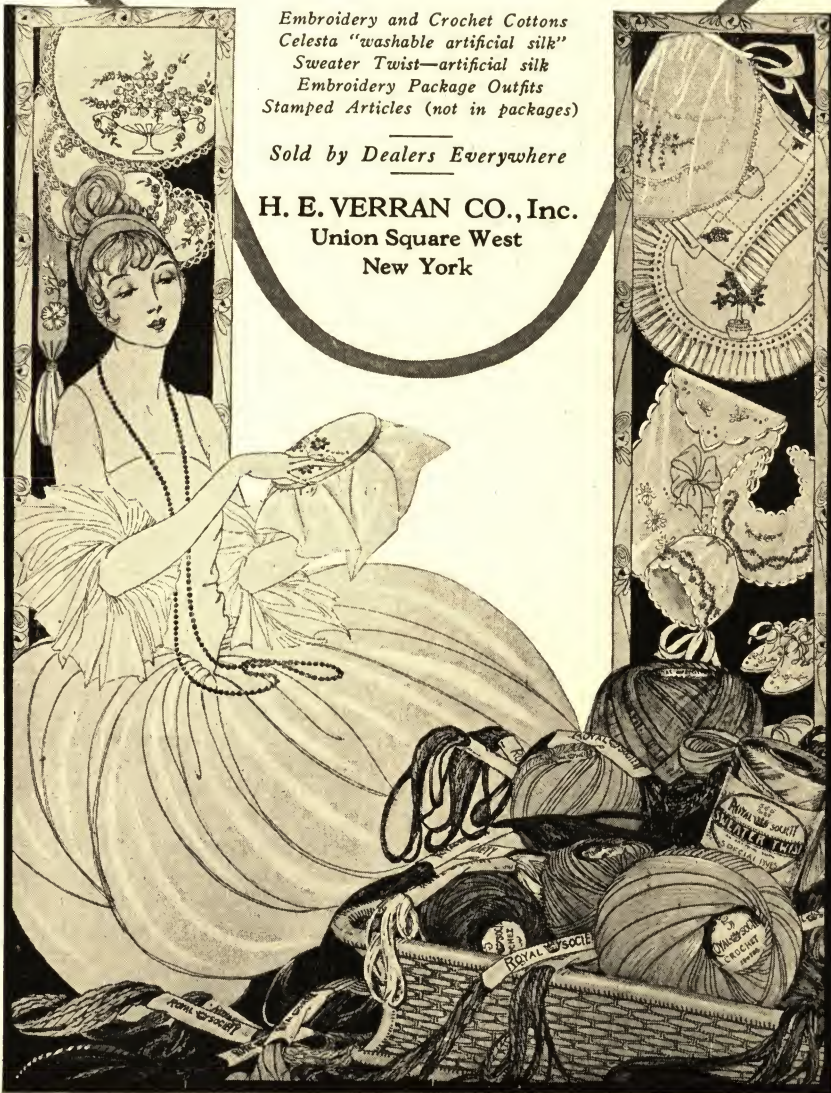
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cient cleansing properties. In prehistoric times, we are told, this mineral was erupted in volcanic regions as boiling hot foam-like masses of whitish rock. When it cooled, it remained as a fine, white, powdery substance.

Some of the powder was blown about and drifted into low depressions; in such deposits it is generally found in thin ledges, usually mixed with sand or clay. Much of it fell or was blown on numerous small lakes, and settled on the bottom. The lakes dried up, leaving deep deposits of the pure volcanic mineral.

It has been discovered that these mineral flakes possess cleansing gifts which are unusual and unique. They have a decided antipathy for dirt in any form. The flaky, ribbed particles lie flat and touch every portion of the surface to be cleaned, and in the process of cleaning they break up into smaller flat flakes. This multiplies their effectiveness, which simply means that they accomplish more with less effort than would cleansers of harder and more scratchy material.

All cleansers must have some abrasive material; and unfortunately some contain hard, jagged particles of ground-up rock or pumice. Such particles do a lot of scratching, and consequently are not so effective as cleansers. Much dirt is ground into the surface by the action of these harsh abrasives, which spells more rapid deterioration of the surface itself, and new marks and scratches into which more dirt quickly works. So it becomes an increasingly difficult task to keep that surface spotlessly clean.

THESE facts just mentioned are convincingly shown by microscopic examination. The difference between the volcanic mineral and ordinary grit is very apparent; it is easy to see why the softer flat flakes are better adopted to making and keeping things clean and with the least expenditure of time and effort. The particles are irregularly shaped and flat. Harder, more gritty particles are in the shape, roughly speaking, of cubes and diamonds, with sharp points which scratch the surfaces. These do not break up and have, therefore, far less actual cleansing area. It is easy to see, too, how scratched and chipped surfaces would quickly result.

Comparative tests, made under magnifying glass, have shown how remarkably the mineral flakes clean without scratching. A few flakes were placed on a piece of glass, a little water added and another piece of glass placed over it. The two pieces of glass were then rubbed lightly together. Careful examination now showed the two pieces of glass crystal clean without scratches. The same experiment made with ordinary gritty substance showed both glass surfaces badly scarred and gouged.

A further test made with rocky abrasive on a glass plate and rubbed with a towel, caused deep scratches across the glass. This would indicate what happens to aluminum ware, enamel, porcelain and painted surfaces when harsh, inefficient cleansers are used. Not only is the cleaning process not effective and easy, but actual damage has been done to the surface.

Thus the volcano has made a really valuable contribution to household economy and cleanliness. The mineral flakes are effective removers of dirt; they multiply as they work, and by so doing increase their own effectiveness.

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need a less formal and technical compilation of knowledge "The World Book" or one of the other condensed reference works compiled for youthful students.

AS for the literature-fiction, drama, poetry, philosophy, biography—to be placed in the home, the choice is as much a matter of personal preference as the choosing of friends among living men and women. The volumes placed on the shelves should be those one desires to read, re-read and refer to frequently. There is no place, except in a library far more extensive than that of the average home, for the book that is read only once and then laid away never to be touched again except to be dusted.

One good bird's-eye view of the best literature of all the ages is furnished by the Harvard Classics, the famous five-foot book shelf collected by Dr. Charles W. Eliot, president emeritus of Harvard. The fifty volumes of the series are published by P. F. Collier of New York. Individual volumes may now be obtained second hand at many book stores. It gives glimpses of a wide variety of literature and will serve as an excellent guide for the collection of additional works of those authors that appeal to the reader.

Inclusion of volumes adapted to reading aloud in the family circle is important in any home library that is really to fulfill its purpose. Humorous writings of such universal appeal as Mark Twain, short stories of familiar modern life of the type of O. Henry and Edna Ferber, stories of rapidly moving adventure and the entire field of the drama will furnish evening after evening of the most wholesome entertainment of the sort that binds the entire household closer together.

The children should be taught to use the Home Library and to realize the great value of it. It is not every family that can afford a very extensive one, and for this reason it should be appreciated. Many mothers are so interested to provide good reading material for their families that they will often sacrifice personal necessities to provide such a luxury. Not only books of literature—fiction, drama and poetry—should come under the attention of the child, but an encyclopedia set is a great aid in his school career.

## Making Cleaning an Art

Continued from First Column

They help preserve utensils, painted surfaces and all equipment which they keep clean, by removing dirt without scratching and marring. Scratches and gouges not only are damage in themselves, but they collect more dirt, thus paving the way for more damage—rapid deterioration.

The flakes are quite as effective, too, for human skin; they clean the dirt off without roughening. In cleaning marble, which soap discolors, the flakes are especially valuable.

Any housewife knows the many advantages of an efficient, economical soft cleanser; and the uses to which such a cleanser can be put are numerous, indeed. In the kitchen, bathroom, on windows, walls, floors, woodwork, for all metal ware and fixtures and cutlery—uses are almost unlimited. Even the baby's bottles would find the flakes a stout ally of cleanliness.

So look to the character of your cleanser. You may insist on having these mineral flakes working for you.



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